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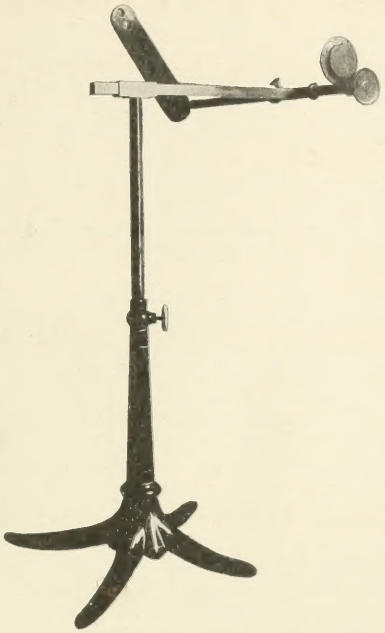

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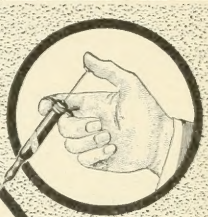

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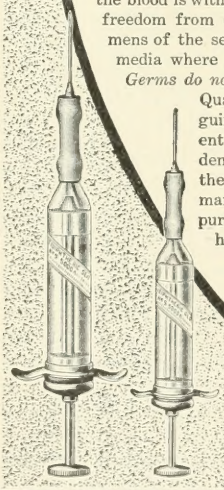

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Recent or Tubercular Choroiditis

OPHTHALMOLOGY

ESSAYS, ABSTRACTS AND REVIEWS.

Vol. 7. OCTOBER, 1910 No. 1.

## *Original Articles*

### XVIII.

### RECURRENT TUBERCULAR CHOROIDITIS.

DR. CARL KOLLER.

NEW YORK.

The prominent part which tuberculosis plays in the causation of eye diseases was not recognized before the beginning of the present century. Tuberculosis was formerly thought to occur but rarely, whereas the part allotted to syphilis was overrated. It was von Michel who first called attention to the fact that about 40 to 50 per cent of all diseases of the uveal tract were tubercular in origin. In chronic inflammations of the choroid it was usual for ophthalmologists generally to be satisfied with classifying choroiditis with reference to the position, shape, and number of the foci, without giving much thought to the etiology. In the vast majority of the cases syphilis was supposed or implied. It is mainly to the incessant endeavors of Sydney Stephenson and George Carpenter in England, since 1901, that we owe any progress in the recognition of choroiditis which is tubercular in origin. They pointed out that tubercle of the choroid may be found at any stage and in any kind of tuberculosis, and that cases may occur without generalized tuberculous infection.

It is the object of this paper to show that tubercle of the choroid is not only more common than we have heretofore thought, but that it occurs with a distinct clinical picture, and should be classified as one of the ophthalmoscopically recognizable forms of choroiditis. Up to the present we have classified tubercle of the choroid under two headings: *First*, conglomerated yellow tumor like tubercle, or so-called solitary tubercle, and *second*, multiple miliary tubercles occurring in the choroid

during the last stages of general tuberculosis, miliary tuberculosis, or tubercular meningitis.

In the third class should be placed, miliary tubercles of the choroid, whether solitary or multiple, which run a chronic course, which recur, and which may be associated with chronic tuberculosis of other parts of the body, but may also frequently be found in persons in whom no other tubercular focus can be proved.

These cases were formerly almost universally, and are even now quite commonly diagnosed as choroiditis, syphilitic in origin. The general clinical picture of these cases is the following: A young adult, from twenty to thirty-five years of age, seeks advice because of a slight disturbance of vision, usually seeing a dark spot in some direction before his eye. Examination discloses now, or a few days later, precipitates on Descemet's membrane, occasionally opacities of the vitreous, and a distinct swelling of the papilla, especially in one quadrant, as if a woolly mass partially covered it. In the choroid, just a few disc diameters from the nerve, at a spot not very far from the macula, a focus is seen, the appearance of which varies greatly, not only according to the stage when first seen, but also most probably according to the direction of its growth (whether toward the retina or toward the sclera). In a fresh case the focus most frequently has the appearance of an indistinct, pearl-pink exudate or a roundish, bulging heap of asbestos-like fuzz of varying size (from a quarter to disc size). In one of my cases a pearl-gray( opalescent), absolutely circular, sharply defined, and non-vascular nodule was seen to protrude above the level of the retina, having apparently no covering whatever. The appearance was absolutely that of an uncovered miliary tubercle of about a third disc size, seen through a magnifying-glass. In other cases similar but much smaller nodules have been observed, these being seemingly the denuded exposed portions of a deeper submerged nodule or group of nodules. Many changes take place in these foci during the period of involution, which takes two or three months for completion. The focus becomes flatter and begins to develop a well defined yellow border zone, faintly stippled with pigment. The border becomes more and more prominent through the accumulation of pigment; the center, denser white. Finally, a very sharply circumscribed defect of the choroid is seen, *larger* than the original focus,

white in its general aspect, traversed by large parallel blood-vessels, irregularly dotted or "peppered" on its surface with pigment masses, and bordered by a narrow pigment margin. This pigment border becomes wider and heavier as time goes on, encircling the cicatrized focus like an ever-growing thorny wreath, as if attempting to encapsulate the patch. Studied in detail, it is found to consist of brown masses, stellate or branched in shape exactly like the pigment scattered over the fundus in retinitis pigmentosa. Three cases of this kind have lately come under my observation.

Case 1. Mrs. B. Z. K., was first seen in October, 1906, when she was twenty-eight years old. Occupation, church singer. General health perfect. Complained of seeing black speck before her right eye. Examination: Veil-like opacities of the vitreous, and, below, in the periphery, two atrophic choroidal patches, each larger than the disc. One of them was sharply defined, the other less so. No attention was at that time paid to a recent focus, which was probably present, as evidenced by the patient's complaint and by the veil opacities of the vitreous.

About three years later, on February 2 of this year (1910), patient appeared again, with the complaint of visual disturbance of four weeks' duration. She was otherwise in perfect health, and gave a good family history. Examination showed many fine, and a few larger, floating opacities of the vitreous. Nerve, edematous, outline, hazy. A few disc diameters from the nerve, below, almost in the vertical meridian, a chain of four choroiditic foci, two old and two new ones, the oldest and largest being most peripheric. The new focus most centrally located is sharply defined and perfectly circular. It is non-vascular, has a clear, pearl-gray color, is raised above the choroidal surface, and about one-third as large as the disc. It abuts one of the older foci, and is almost confluent with it, having only a minute pigmented area between. The other new focus lies between the two old patches, and presents a picture of edematous retina overlying some indefinite exudate with a disturbance in the regularity of the retinal pigment distribution. The old foci appear as two more or less round white patches, in the depths of which a few faintly outlined large vessels may be seen, each patch bordered by irregular brown pigment masses; with spatterings of pigment on the central white surface—de-

tails common enough to all atrophic choroiditic patches of any appreciable size. No drawing of the fundus was made at this time.

On February 9, the new foci had undergone some change. The larger, pearly, circular focus is now somewhat flatter, and has developed a narrow, yellowish, halo-like border zone. The pigment over the small one was still more scattered, the natural choroidal color disappearing around the pigment blotches.

In the plate shown, drawn about February 25, the perfectly round and sharp contour has not been brought out, but is clouded by the prominence given to some minor details. March 11, no further changes. April 24: The circular focus is now horizontally oval, much larger than the original nodule, still sharply outlined, but flat, grayish-white, translucent, with the large vessels of the other choroidal layers shining through. There is no definite reticulated or blotched pigment border as yet, but an indefinite intensity of the pigmentation of the surrounding background in place of the yellow zone. On each side of the focus a few, very minute, irregularly pigmented, scattered pale areas can be made out. The small focus between the two old large peripheral ones appears now as an irregularly atrophied choroidal area, over which a few spots with an intense pigment center and pale surroundings are spread. A little nearer to the large retinal vein, more central than any of these foci, an entirely new small focus is beginning, having the appearance of a pearl-pink exudate. This new focus has not caused any new visual disturbance. Neither are there any fresh precipitates, and the media are clear, except for a few old strand-like floating vitreous opacities.

Case 2. Mr. S. G., twenty-three years old, presented himself March 17, 1909. Is in perfect general health; also looks well; has a brother who is suffering from tuberculosis. Says for four or five days he has noticed black spots before the left eye, the vision of which is somewhat blurred. Findings: Precipitates on Descemet's membrane; optic nerve swollen; outline obliterated; nerve swelling in the center, 2 diopters. About 5 disc diameters from the nerve, near a branch of the upper nasal artery, a whitish, choroidal exudate is seen; retina here elevated 3 or 4 diopters; surrounding the focus, a few small hemorrhages and a little pigment.

March 28, choroidal patch more sharply circumscribed; opacities of the vitreous present.

April 9, eye without irritation; precipitates have disappeared. Swelling of the disc lessened, and beginning involution of the patch.

May 18 (six weeks later), changes in the patch have progressed. Now well defined; *pigmented border beginning to appear.* Patient complains that for past six days his vision has been worse. A veil-like opacity of the vitreous blurs somewhat the clear view of the optic nerve, which has now become more swollen again. (In the light of later observations, it is probable that, somewhere in the neighborhood of the choroidal patch, a new small focus had appeared, which had not been observed, but which produced the subjective symptoms.)

June 24, nerve swelling diminishing; outline becoming visible; choroidal patch almost cicatrized.

Patient was not seen again until February 11, 1910, eight months later, when he came because of renewed visual disturbance. Media clear. Near the nasal and lower edge of the old patch there is now to be seen an indefinitely outlined new focus, which is probably deep in the choroid or beneath it, imparting a grayish, fawn-colored tint to the area, which is elevated, and over which the retinal pigment is disturbed.

In this area the elevation of the choroidal focus measures 6 diopters at the point of greatest prominence, just where a branched retinal vein runs over it. At its inferior incline, between the branches of the vein, there is one small round, pearl-gray nodule with a sharp scalloped border; another, less sharply defined, lies above the upper branch. Elevation in this region is 5 diopters. Papilla markedly swollen.

February 28, seen by Dr. Young, who was making the drawing of the fundus. Had had about this time an injection of ½ mg. tuberculin for diagnostic purposes. No reaction.

March 4, a second injection of T. V. was made (this time 1 mg.). Was seen the next day by Dr. Young, who noticed marked alteration in the condition of the eye, which may be taken as a local reaction. There were new opacities of the vitreous. In the region above the vein, where the retina had been grayish fawn, the color had changed to a purple gray (retinal edema).

March 15, the old patch has become somewhat succulent (edematous) and striated, bulging in its lower portion (adjoining the new focus), and rather indistinct through many fresh opacities of the vitreous, both strand-like and diffuse.

March 28, vitreous entirely clear. The edema of the nerve passing away. In place of the two small nodules near the branching vein there are flat, round, choroidal patches, paler in color than the surrounding choroid, and covered by scattered, fine pigment dots.

May 1, the choroid and retina are still elevated over an area which takes in the old atrophic patch and the new irregular focus below it, as if the whole were pushed forward by a mass or focus in the underlying sclera. This is well demonstrated in the atrophic patch, where the large choroidal vessels make a sudden dip at the edge. Media, clear; nerve, well defined.

Case 3. Mrs. F. L., twenty years old, with good family history, of frail build, but in good health, presented herself May 20, 1908, complaining of seeing black spots in front of her right eye for two or three days. (She was at that time at the end of the second month of her first pregnancy, was at the proper time delivered of a healthy child, and has continued in her usual good health since.) Vision of the affected eye, 6|viii. Just above the macula, along the course of the superior temporal vessels, an oval atrophic choroiditic patch, bordered by pigment, is seen, at the upper outer edge of which a small fresh focus is appearing, recognizable mainly by the edematous retina and irregular pigment covering it. This is probably the freshest focus which has come under my observation.

June 1 (about six days after the onset of the trouble, and three days after the patient's first presentation), the optic nerve was considerably clouded by vitreous opacities, and vision was reduced to 4|xii. Four days later, June 4, the vision had diminished still further, to 4|xviii. The focus had grown, having the appearance of a light colored, indefinitely outlined choroidal exudate.

June 16, floating and dust-like opacities in the vitreous, especially anteriorly.

June 24, considerable clearing of the vitreous; vision 6|vi.

July 30, nine weeks after the onset of the trouble vision was 6|v (above normal), and there were no opacities of the vitreous remaining, though involution of the patch was not complete.

After that the patient was lost sight of until she presented herself upon request.

April 11, 1910, media clear, no opacities of the vitreous. The first old patch shows a thick, voluminous border or wreath of pigment, composed of stellate or branched pigment masses. The white center is sparingly pigmented. Above and temporally, almost contiguous with this focus, there is a smaller one, less distinct, and less pigmented, of tessellated appearance. The larger focus is most likely very old, as indicated by the amount of the pigment. All the retinal vessels in this region run anterior to the pigment border.

These three cases have in common: their occurrence in healthy young adults in whom no other tubercular lesions could be found; the recurrence of the process, a characteristic grouping of the foci, the appearance of precipitates and veil-like vitreous opacities during the early stages, an intense optic nerve swelling, a comparatively central location of the patches, and the disappearance, during regression, of all symptoms interfering with clear vision, the circular or oval shape of the old patches, and their increased size and pigmentation. They exemplify a type of chronic recurring inflammation in the choroid, the true nature of which has not thus far been generally recognized, nor has it consequently received its proper classification among the tubercular choroidal affections.

It is not possible to furnish absolute proof in each case that the lesion is tubercular, but the circumstances pointing in this direction are so many that they may be taken as positive evidence clinically. A few of these points may be enumerated:

First, the great prevalence of the tubercular compared to other pathologic processes. In the statistics of autopsies tubercular lesions are found in 80 to 90%.

Second, the ophthalmoscopic recognition of tubercles as such in some of the fresh cases of this class, and in others the identity of the picture with that seen during the last stages of an acute miliary tuberculosis or tubercular meningitis. A separate obsolete focus may not, it is true, be distinguishable opthalmoscopically from an old patch of other origin, but in both the fresh and obsolete cases the other factors characteristic of miliary tubercles of the chronic type become decisive—*the foci in this chronic tubercular type have a characteristic distribution.* They are not widely disseminated over the fundus, as we find them in

syphilitic choroiditis or in the large atrophic patches of myopic eyes, but they occur either singly or as a confluent group or chain of foci in one region,—not all in the same stage of the inflammatory process,—and they are usually confined to one eye only.

Carpenter,[1] referring to miliary tubercle of the choroid in general, has called attention to some of these points, and tersely expresses them by saying that "miliary tubercle of the choroid is generally central, solitary, small in size, and uniocular." Referring, however, to the diagnosis of tubercular from syphilitic lesions, he says: "The early stages of both are identical in appearance, and the final stages are probably quite indistinguishable, the one from the other, as no doubt will be proved to be the case at some future date. If such chronic choroidal changes be associated with chronic tubercles in other parts of the body, or with the history of past tuberculous infection, and if syphilis can be excluded, surely the weight of clinical evidence is in favor of their tubercular origin." In this view of Carpenter's as to the ophthalmoscopic identity of the tubercular and the luetic forms I do not entirely concur, as has been seen, though it is quite true that the absence of a syphilitic serore-action and an associated chronic tuberculosis of other parts may be important corroborative data in doubtful cases.

Third, Stephenson, in his well-described case, found tubercle bacilli in the aqueous, and so proved the tuberculous nature of the lesion. This case bears great resemblance in its general features to my Case 1, in which an uncovered tubercle could be seen ophthalmoscopically. While the examination of the aqueous is not generally feasible, Stephenson has made his case of inestimable value through this positive evidence in one case.

Fourth, the positive ocular reaction after the diagnostic tuberculin injection in my Case 2 is a further proof that this type of miliary choroidal foci is tubercular: for, although a negative local reaction may not preclude the tubercular nature of a lesion, it is very generally conceded that a positive local reaction is evidence of an active tuberculous process in the organ affected.

Fifth, the tendency of this form of choroiditis not only to recur, but the fact of recurrence at the edge of or in the neighborhood of old cicatrized foci, is characteristic of chronic tubercular processes everywhere. They progress contiguously, .

new tubercle beginning just outside of a cicatrizing or an encapsulated old focus. This is not characteristic of a syphilitic lesion anywhere in any stage.

To recapitulate: the factors pointing to the tubercular nature of this far from rare type of recurring choroiditis are:

The prevalence of tubercular lesions generally, the ophthalmoscopic identity of the foci with tubercles in the known acute cases, the finding of tubercle bacilli in the aqueous of one authentic case, the further proof of a local reaction upon a diagnostic injection in another case, and the well-known pathologic characteristics of the chronic tubercular process. All these justify us in classifying as tubercular such cases as I have described, and, so far as I know, it is the first time that these cases have been so classified.

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# A CASE OF SARCOMA OF THE OPTIC DISK.

G. D. Murray, M. D.,

SCRANTON, PA.

Rev. J. H., aged sixty-six years, presented himself at my clinic at the Moses Taylor Hospital September, 1907. His objective history was as follows:

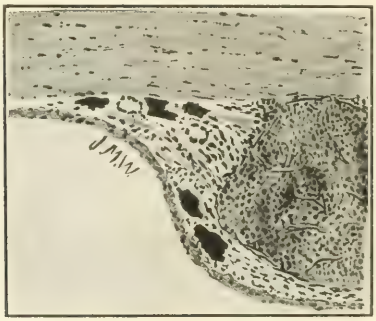
Three years previous to his visit, sight in right eye began to fail and gradually grew dimmer until when I saw him, there was only a slight light perception. During this period of three years he suffered no pain, nor were there outward signs of disease in the eye. Upon examination there could be demonstrated a slight pupillary reaction to light. Pupils equally dilated, media clear, fundus negative with the exception of a small hemorrhagic spot and the papilla was completely obscured by a pearly grey spheroid body, apparently the diameter of the disk and pedunculated; at least the edges were undercut and the shape was perfectly symmetrical. Appearance was that of a cyst, perfectly spheroid, attached apparently to the centre of the disk. I was unable to detect any vessels on its surface and although cystic in appearance, it did not move on its base. Assuming that the growth was malignant, I recommended immediate enucleation. I saw nothing more of this patient until March 2nd, 1909, when he again returned and reported as follows:

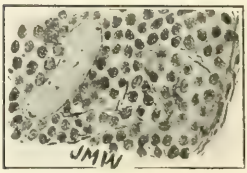
No change was noticed in the eye until after an attack of La Grippe three months before when the eye became congested and painful. This condition continued until the pain became excruciating, and the loss of sleep caused more or less delirium. Upon examination tension was plus 2; bulbar conjunctiva thickened and engorged; iris irregularly contracted and fixed; pupil opaque.

The eye was enucleated and there was found a growth situated in the fundus entirely covering the papilla about 9 mm's in breadth at its greatest diameter, and 8mm in thickness, of irregular contour.

The specimen was turned over to my colleague, Dr. J. M. Wainwright for microscopic examination. The following is his report:

Microscopic Examination: The tumor lies between the sclera and retina. The portion of the retina lying stretched over the tumor is considerably thinned out and disorganized so that its characteristic anatomical structure is lost.





The tumor itself has no definite capsule, but is sharply limited by the sclera. The tumor cells do not invade the sclera at all. There is considerable diffuse infiltration of tumor cells in the loose connective tissue, lying in the angle between the retina and sclera at the point where they separate to cover the tumor.

The tumor mass itself is composed of densely packed cells. There are numerous fine connective tissue septa running through the tumor, but there is no definite alveolar arrangement. The cells lie in a very delicate connective tissue reticulum. The bodies are small and stain poorly. The nuclei are small, oval, or spindle shaped. They stain diffusely with hematoxylon and

show a fine dot like nucleolus, but very little granular or chromatic structure. Mitotic figures are very scarce. In the portions of the tumor lying near the retina, there is considerable melanotic pigment lying between the cells. This, however, is absent in the more distant portions of the tumor, so that its presence is probably accidental, and should not place the tumor in the melanotic class.

Diagnosis: Small spindle celled sarcoma. The tumor was studied by Dr. W. C. Clarke and other members of MacCallum Staff at Columbia and the diagnosis was confirmed there.

# THE DIFFICULTY SOMETIMES MET WITH IN THE DIAGNOSIS OF A SUBRETINAL MASS.*

ROBERT L. RANDOLPH, M. D.,

BALTIMORE, MD.

The following case came under my observation the first day of September, 1909: F. W. M., twenty-eight years old and apparently in fine health and leading an outdoor life on the farm. He had been gradually losing his sight in the left eye for over a year and had been under constant treatment all this time. His vision in the affected eye was 20|cc with a very slight amount of hypermetropia. His vision in the right eye was 20|xx with an equal amount of hypermetropia and a little astigmatism according to the rule. His pupillary reactions were perfect. His media were clear. The accompanying drawing shows accurately the condition of his eyeground at the situation of the subretinal mass. The area in the picture does not take in quite a large portion of the lower and outer side of the retina in which location there are numerous patches of choroditis of the characteristic disseminated type. The pigment changes seen at the base of the mass and which are also present on the sides of the latter are situated in the retina. One will note just above the mass a circular area somewhat larger than the disc. This area suggests that we possibly have here the commencement of just such a mass as we have below. It has no elevation yet but it is evidently a choroidal process which has thus far made no headway into the overlying retina. That we have an unmistakable choroiditis is clear from the numerous patches as has just been said to the lower and temporal side of the mass. The pigmentary changes in the retina seen near the mass are secondary to what I think is a protracted disease of the choroid. As to the exact nature of this disease I am in doubt but I am rather disposed to regard it as the so-called pigmentary chorioretinitis described by Pope, Rudnew, Förster, and Iwanoff.

It is not difficult to conclude from what I have said that I regard the mass as inflammatory in nature, that is to say, a

*Read at the 16th annual meeting of the American Ophthalmological Society, Washington, D. C., May 10, 1910.

variety of chorioiditis. When first seen I thought of a tuberculous process and the patient was subjected to the usual tests for tuberculosis with the exception of the Calmette test. The most sensitive of the three tests, the cutaneous test, was repeated for fear that some blunder had been made in the technic of the first trial but it too resulted negatively. The subcutaneous test showed neither the slightest systemic nor local reaction. This would seem to exclude tuberculosis and he was at once put on iodid of potash running up to thirty grains three times a day. This treatment was kept up for five weeks when I began to think strongly of leukosarcoma of the choroid, a possibility which I have kept before me ever since I made the first examination of my patient, but which condition I think less likely now than I did earlier in his history. I sent him to three colleagues in neighboring cities with the statement that I was in favor of leukosarcoma. One said "It is more than likely that it is leukosarcoma, but I should advise keeping him under observation for some time before proceeding to radical measures." Another said that "the diagnosis lies between tubercle and leukosarcoma," while the third was in favor of an inflammatory process. If I remember rightly none of the gentlemen had seen a similar condition. About this time a Wassermann test was made with negative result though it must be said that he had been taking iodid of potash and small doses of the biniodid of mercury for some weeks. He has now been taking iodid of potash pretty steadily all the autumn and during January, February and March he was taking 100 grains three times daily. Since the first of April he has been on tuberculin injections starting with 1|10000 milligram and increasing gradually till he is now taking 100 milligrams twice a week.

He has been subjected to frequent ophthalmoscopic examinations and before he was put on the tuberculin injections I noted some shrinkage of the mass at its lower and inner side also at its upper and inner and aspect. This was determined by the position of certain vessels which had, so to speak, parted company with the "tumor" and now lay somewhat away from the latter. I see no recession of the mass which seems to me to measure as it has always done, about 2mm in height, perhaps a shade higher. I have determined to keep him on tuberculin injections another month, and longer if there seems to be improvement; if not my intention is to return to large doses of

iodid of potash. I see him once a month and careful measurements of the state of the growth are made with the ophthalmoscope and perimeter.

The difficulty alluded to in the title of this communication is that of deciding whether we are dealing with an eye which should be removed or with an eye which is comparatively harmless. Transillumination no helpful information.

Congenital Dislocation of the Lachrymal Gland (Jones)

Orbital Edema (Becker)

# CONGENITAL DISLOCATION OF THE LACHRYMAL GLAND.

LEONARD W. JONES, M. D.
ROCHESTER, N. Y.

The following rather unusual anomaly was seen in the person of Nellie W., age 10, who presented herself at the Eye Clinic of the Rochester Public Health Association on April 28, 1910, for a tumor underneath upper eyelid and close to outer canthus of the left eye.

The mother states that the growth was present at birth, has never caused any pain nor as far as she knows, any deterioration in vision. The development of the tumor has kept pace with that of the eyeball and there has consequently been little or no disfigurement.

Under ordinary circumstances the tumor is barely visible, but on drawing the upper lid towards the brow, a small tumor about 15mm in its long axis and 10mm across, in color resembling a fleshy pterygium is seen. It lies under the ocular conjunctiva, slightly above the insertion of the external rectus and can be readily reduced into the position it should occupy and retained there by finger. On removing finger, tumor reappears.

The movements of both eyes are normal. Fundi show no pathological conditions and the vision of each eye is 20|xx.

According to Theobald[1] in Norris and Oliver's System of Diseases of the Eye, there have been but few cases of this condition reported. The protected position of the lachrymal gland would naturally make a dislocation exceedingly uncommon.

Von Graefe[2] and Rampoldi[3] have each reported a traumatic dislocation of the gland and Snell[4], of Sheffield, has reported one case of non-traumatic dislocation and one congenital dislocation of both glands. Noyes[5], Manthuer[6], and Briere[7] have also described cases.

The mother of the patient refuses, at present, to have anything done for the removal of the tumor.

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# ORBITAL EDEMA, WITH PROPTOSIS, RESULTING FROM AUTOINTOXICATION: A CASE.

H. M. Becker, M. D.,

SUNBURY, PENN.

Autointoxication has occupied the attention of the medical profession for a number of years, but it has been only during the last decade that its bearing on ocular diseases has been more thoroughly investigated. It is not the purpose of this paper to enter into a general discussion of the affection, but rather to add one more of its results to ophthalmic literature. Text-books and literature contain ample quantities of results and descriptions of the effects of autointoxication upon the cornea, sclera, uvea, choroid, retina, etc., but do not appear to be very prolific in conditions similar to the case I shall attempt to describe.

In the general study of the affection observers differ greatly and have arrived at vastly different conclusions, many of them not making a clear distinction between autointoxication and autoinfection, thereby causing more or less confusion in the discussion of this important condition. Albu, Von Jaksch, Schwalbe and many others, after dilligent investigation, have given us definitions, but as observed by W. Louis Chapman[1], "The variety of definitions given for this state bears testimony to the difficulty of obtaining one which is terse and yet comprehensive."

In is relation to ocular disease Uhthoff[2] and Elschnig[3] have made exhaustive studieds, and contributed valuable literature on the subject, but it would be difficult to obtain a more clear and concise statement from a diagnostician's standpoint than that of Dr. G. E. de Schweinitz[4], who says: "If we are to assume an autointoxication of gastro-intestinal origin as a probable etiologic factor in any ocular disease, it is necessary to know some sign by which such enterogenous decomposition may be recognized. The most definite symptom, as Elschnig points out, is the presence of abnormal compounds in the urine, for example, phenol and conjugate sulphates, substances which are difficult to test. Easier of recognition is indican, the presence of which in increased and persisting quantities in the urine indicates decomposition of albumen in the digestive tract. To be sure

it is present in fevers, in anemia, in leukemia, and even in neurasthenia, but it is said not to be present in simple constipation. It is this presence of indican which Elschnig regards as the best test of disturbances in the alimentary canal and the production of products the reabsorption of which gives rise to the toxemia to which he attributes the influences that bring about various ocular conditions, and in his experience the corneo-scleral region and the uvea are most likely to suffer."

The diagnosis of the case under consideration was made largely by exclusion, from clinical history and the decided indican reaction, which was rather persistent, and not being entirely eliminated for about four weeks. Naso-pharynx was found normal, no coryza, no pustular discharge; tumor, hemorrhage, traumatism, emphysema, over exertion were easily excluded, cellulitis and sinus disease presenting some difficulty.

Inflammation of the cellular tissue of the orbit—orbital cellulitis—as described by Fuchs[5] "Manifests itself by a marked edema of the lids and conjunctiva (chemosis). Associated with this and forming the most important symptom of all is the protrusion of the eyeball, which is caused by the swelling of the tissues behind it. Even as a result of the protrusion alone the eyeball's motility is impaired, and an actual paralysis of the eye muscles may be superadded. The sight is often reduced or may even be entirely abolished owing to the implication of the optic nerve, and the ophthalmoscope shows an inflammation of the nerve. At the same time there are violent pain, fever, and not infrequently also cerebral symptoms, such as headache, vomiting, stupor, retardation of the pulse, etc."

Comparing the case in hand with this train of symptoms, we find that in many respects it shows a similarity, while in many others it markedly differs. For instance, the very moderate edema of the lids, and the very moderate chemosis, the positive absence of optic nerve implication, the very slight—practically painless condition, very slight headache, the absence of stupor, the very moderate fever, and acceleration of the pulse, are points of difference. All the cerebral symptoms entirely disappeared with the thorough cleaning of the intestinal tract. These symptoms, with the absence of the etiological factors of cellulitis—traumatism, contiguous inflammations, erysipelas and metastases—scarlet fever, typhoid fever, pyemia, influenza, menin-

gitis, etc., pointed rather to the diagnosis of œdema than cellulitis.

Ball[1] says: "Luxation is present when the exophthalmos is so great that the globe has left the orbit entirely and lies in front of the septum orbitale. It is caused by trauma. A less degree of protrusion is called exophthalmos, and is found in orbital tumors and in suppuration in the sinuses adjacent to the orbit. It is present in Graves' disease, in paralysis of some orbital muscles, in inflammation of Tenon's capsule, and in general inflammation of the orbital tissue. It may be caused by the presence of foreign bodies in the orbit," and further, "The accessory sinuses, frontal and ethmoidal, the nasal cavity, antrum of Highmore; roof of the mouth and upper pharynx should be examined in any case of exophthalmos. In doubtful cases of tumor of the orbit, or of the adjacent parts, electric transillumination should be employed." Transillumination was employed but did not reveal anything abnormal in the sinuses. Normal teeth, and the absence of any abnormal condition in the nose, acute or chronic; of diseases that enter so largely into the etiology of inflammatory and suppurating affections of the accessory sinuses—influenza, coryza, tuberculosis, syphilis, etc., of optic neuritis, and the rapidity of the almost complete proptosis would tend to exclude sinuitis.

Previous history: Ruth S., age 9 years. Referred by Dr. J. B. Cressinger, February 23, 1907. O. D. V. 6/5. O. S. V. 6/6.

Has frequent attacks of headache, occasionally accompanied by dizziness and some nausea, no vomiting, except during what were called "bilious attacks." During these headaches there is always pain in the globes and orbits. Some photophobia and lachrymation. Blurring and dimness rather marked. Some spasm of accommodation. There is some itching and scratching of the lids, and slight marginal blepharitis. The foregoing symptoms have been present for several years and are always intensified during school term, followed by more or less abatement during periods of vacation.

*Ophthalmoscopic examination*: Media clear; rather dull reflex; fluffy retinæ; vessels quite numerous, many small branches appearing abnormally large, with rather marked venous engorgement, they appearing quite dark, almost black, with slight pulsation on discs, inferior central somewhat tortuous and irregular in calibre. Discs oval, slight increased redness, espec-

ially toward periphery, trifle hazy at margins, not swollen, shallow central physiological depression.

Muscles 1-2 Hypophoria; 1 Esophoria.

Atropine cycloplegia showed hypermetropic astigmatism, viz: + 1.25 s. + 0.50 cyl. ax. 90 V. 6 v + aa 0. With slight reduction from the sphere, this lens worn constantly gave perfect relief from all the asthenopic symptoms, and the patient was not seen until September 21st, 1909, when present condition was found.

Patient was again referred by Dr. Cressinger, whose report follows, with a diagnosis of autointoxication. "Ruth S., aged 12 years, fairly developed, well nourished. Taken ill September 20th, '09, about noon. First seen about 5 P. M. that tday. Moderate fever, slight nausea, tongue coated, breath foul, pulse slightly accelerated, slight headache, no evacuation of bowels for three days. Conjunctiva of left eye red and a trifle swollen, very slight pain, slight photophobia, slight lachrymation, no exophthalmos. Treatment: Calomel gr. 1-5 every half hour for ten doses, followed by laxative. Boric acid wash every 3 hours.

Urine analysis: Sp. Gr. 1028. No albumen, sugar, blood, pus or casts. Very decided indican reaction. Sept. 21st, 10:30 A. M. Bowels open, tongue clearing, fever slight, breath still foul, conjunctiva of left eye red and slightly chemotic, exophthalmos very marked, pain slight."

I saw her about 5 P. M., Sept. 21st, and found left eye almost entirely proptosed. Apex of cornea half inch beyond root of nose, and finger could be pushed well down behind the globe under the supra-orbital ridge. Upper lid slightly edematous, almost immovable, and very slight chemosis of bulbar conjunctiva, more marked in lower half, extending well down into the culdesac. There was absolute fixation of the globe; patient could not rotate it in any direction and it could not be moved mechanically with moderate force. No pulsation. There was very slight pain described as "burning". Rather marked photophobia; some lachrymation. Diplopia in all directions except directly forward and a trifle upward—in the linie of the proptosis. Pupil dilated, irresponsive to light or accommodation. Remained dilated for three days then contracted and responded to light for several days, again became fully dilated for ten days, when it again contracted, became active to light and accommodation and remained so during the

course of the disease. At no time after the second day was there any rise in the temperature, or acceleration of the pulse. The condition was practically painless and in the endeavor to prevent abscess formation, ice compresses were continuously applied for several weeks, when the globe began to recede, gradually settling back into the orbit to the position it occupied at the time the accompanying photograph was made, Dec. 24th, '09. At this time the exophthalmos was about 3-16 of an inch. Unfortunately it was impossible to obtain a picture of the case when the eye was proptosed, and this picture shows only the "hernia" of conjunctiva, which first appeared when the globe retracted, and gradually increased in size as the globe returned to the orbit. It was a trifle larger than shown, but remained stationary at this size for several weeks. The paient was shown at the Phila. Polyclinic Hospital on Dec. 21st in the clinic of Dr. William M. Sweet, who very kindly confirmed the diagnosis of "Orbital edema, due to some form of toxemia," and concurred in the opinion that this protrusion of conjunctiva was not entirely edema, but that an hypertrophy had taken place, which is well sustained by Dr. Cressinger's pathological report: "Conjunctiva thickened and highly vascular. The subconjunctival tissue shows dilation and proliferation of the blood vessels and dense round cell infiltration. No spindle-cells or giant cells."

This protrusion did not extend above the centre of the cornea, nor entirely to the edge of the lower lid. There was only slight ectropion, the lid being somewhat pushed downward by the mass of protruding tissue.

On Dec. 27th I removed the entire mass under general anesthesia, carrying the incision close to the globe and edge of the lower lid, allowing just sufficient tissue to permit suturing without tension, and preserving the hypertrophied caruncle by passing just above it. The hemorrhage during the operation was quite profuse, especially from three enlarged arteries, two near the outer and one near the inner canthus. Following the operation there was moderate ectropion for several days, which then entirely disappeared, the lid then returning to its normal position, and all that remains now, March 1st, 1910, is slight hypertrophy of the caruncle, and slight redness of the lower palpebral and bulbar conjunctiva.

Vision varied during the progress of the disease from 6/lx to 6/c, subsequently it gradually improved and is now 6/x +, without correction, and 6/vi +, with correction.

Repeated examination has not shown the slightest optic neuritis at any time. There was some infiltration about the macula, the appearance being similar to that occurring frequently during pregnancy, probably another proof of the autotoxemic origin of the disease, which has entirely disappeared under persistent intestinal antiseptic treatment, iodide of sodium, and dionin.

While the patient was unable to impart much motion to the upper lid for a period of two months, at no time could paralytic ptosis be demonstrated. Though the cornea was exposed during this entire time, there was no tendency to ulceration. No inflammation of the iris or ciliary body occurred. At the present time ocular movements are good in all directions; 1 degree exaphoria; no diplopia, nor has it been possible to demonstrate any paralysis of the extraocular muscles, movements approaching the normal as the edema disappeared. There have not been any styes nor any form of blepharitis since the beginning of the strict dietetic and therapeutic regimen prescribed for the enterogenous decomposition. She has gained 15 lbs. in weight, and instead of being a fairly developed child with sallow, muddy skin, she presents the picture of health and development for her age.

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# ON THE DIFFERENT PRISM TESTS WITH PRESENTATION OF A SERIES OF PRISMS ARRANGED ON A CIRCULAR DISC.

Dr. Lucien Howe.

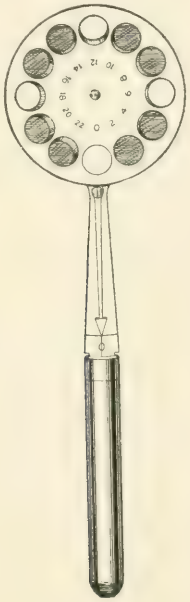
BUFFALO, N. Y.

It is unfortunately true that there is still much confusion even in the minds of ophthalmologists, as to what is meant by tests with prisms. One practitioner means by this one procedure, another means another method which may give quite different results.

The first object of this paper is to call attention very briefly to the three methods of using prisms which are generally employed, and second, to present an instrument which has been found useful in making tests of both the minimum and maximum powers of duction.

First. (A) In regard to the use of prisms for measuring the position of the eyes at rest. The principle on which this familiar test depends is well known. It is the physiological fact that if the retinal image of one eye is displaced far from the position which it should occupy to correspond to the retinal image in the other eye, then, there being no longer any possibility of uniting these retinal images, each eye tends to swing into the position which is most natural and comfortable to it. Thus, if we take the usual example of placing a prism base down before the right eye, and the subject under examination is directed to look at a light immediately in front, the displacement of the image on the lower part of the retina of the right eye is such that the right eye as well as the left tends to swing into the position most natural to the eyes when they are at rest. It is only necessary to mention these tests for esophoria, exophoria, etc., so familiar to every ophthalmologist. The excuse even for this mention of them is to call attention to the fact that when prisms are used in this way they measure the position which the visual axes assume when such eyes are at rest, in other words they measure what has been often called the static position of the globe. This group of tests is to be clearly and widely separated from the two groups next to be described.

(B) Concerning the use of the prisms to test the dynamic condition. Although the majority of ophthalmologists recognize a distinct difference between the use of prisms to show the static as distinguished from the dynamic condition, it is by no means every one who recognizes the fact that when we test the dynamic condition of the eyes by one method we obtain one result, and if we use the prisms in another way, we obtain quite a different result.



For example in testing what we call the strength of the adductors, if we place a spot of light at a distance of twenty feet or more in front of the patient, and using prisms arranged in series or prisms from the test case, if we begin with those which are amply sufficient to produce diplopia and gradually *decrease* the strength of these prisms we find usually that a prism of six or seven degrees before one eye with the base out, or three or

three and a half with each eye, is the weakest which permits double vision. This has been called "the minimum power of adduction". It is quite constant, and a very considerable number of tests give the same results.

But on the other hand, if the separate prisms are arranged in series or especially if we use the revolving prisms such as we call the Risley prisms, then in using any of these, if we begin with a prism base but which is so weak that double vision is not produced, and if we *increase* the strength of the prism, particularly if we keep the patient intently looking at a distant object, then apparently the effort to obtain binocular vision becomes so great that we find by this method of testing the person can overcome a prism before one eye of 10, 12, even 15° or more.

The result obtained by such an effort has been called "the maximum power of adduction". It is by no means constant. It varies not only very decidedly in different persons, but also it varies in the same person at different times. This observation is by no means new. In order to overcome in part the confusion on this part the Section of Ophthalmology of the American Medical Association agreed that in any mention of the use of prisms for testing the dynamic condition of the eyes, it should be understood that the examiner began with prisms which were too strong and proceeded with those which were weaker.

In spite of that rather exact definition it is still unfortunately evident that ophthalmologists among us disregard this point so important to us all. If we are to understand each other intelligently, and if we are really to make any progress in our efforts to clear up the confusion concerning the ocular muscles. The confusion on this point is still so great that it seems worth while to call attention to it again, even though it is not new.

Second. A simple instrument for making tests of the dynamic condition. From the foregoing it is evident that the revolving prisms of Crète and Risley are in general not reliable for the tests of the dynamic condition as are separate prisms or prisms in series. The separate prisms of course are in every ophthalmologist's case. But the trouble of reaching first for one, and then another prism is so great that long ago these prisms of rather large size were placed one above the other in

the form of series, such as the series suggested by Noyes, or later the modifications of that series in the so-called double battery of Gould.

For several years I have also used a series of about twenty such prisms on a long handle. The difficulty with them all, however, is that they are inconvenient, clumsy, and if the series is at all complete the instrument is too long to be pushed up and down before the patient's face. Of course it is impossible to take such an affair in one's pocket for home or hospital examinations. In view of these disadvantages it occurred to me to make these prisms very small, and arrange them on a disc as we have the lenses in the disc of an ophthalmoscope. With a disc of say eleven such prisms of even numbers on one side, and eleven other prisms of the odd numbers on the other side we have at once a range of from one to over forty degrees. Accordingly I have had such a disc constructed. It is simple in the extreme, as the disc is only about 5 centimeters in diameter it is easy to hold it before the eye and below the brow, with the bases out, and can in that way test the power of adduction, or simply turn the disc around so that the bases are in, and we test the abduction. Or by turning the bases down or up holding the handle horizontally, we can test the power of superduction or subduction as desired.

This arrangement of the prisms has a slight addition which also seems to be of some value. It consists in placing a small pendulum on the handle which can swing through an arc of about ten degrees. Thus, when in testing the adduction for example, we hold the disc by its handle in the right hand, and if the pendulum on the handle points to the zero mark, we know that the prisms are just horizontal.

This arrangement is useful for the horizontal muscles because with them we often need to use strong prisms, and a slight malposition may make a difference in the result. It is not so essential for the vertical muscles, however, for we seldom use a strong prism in testing them, and the corresponding error of malposition is therefore slight.

The whole arrangement of these prisms with the pendulum mentioned is so small that it can be easily placed in a vest pocket or kept in the trial case.

# A DEVICE AND METHOD FOR DEVELOPING THE ART OF WRITING WITHOUT THE USE OF THE EYES.

J. N. Rhoads, M. D.,
PHILADELPHIA, PA.

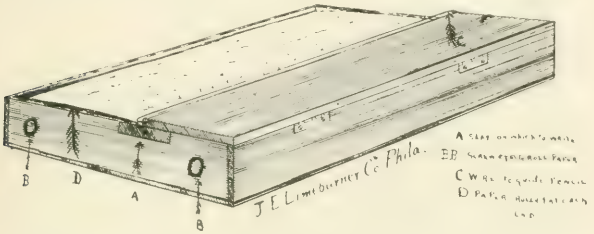
Many years ago while engaged in a busy general practice I developed a troublesome intermittent heart due to indigestion, and at the same time was chased with a desire to write literature. I would often write till twelve o'clock at night, and even an hour or so longer, and then get up in the morning at five and go at it again. Such a course ran me rapidly towards a breakdown, and soon knocked out my eyes.

I consulted an eye doctor, and in consequence had drops put in my eyes, and while still under their influence went among my patients and wrote prescriptions. Instead of using temporary glasses, (such as I now order for those of my patients who do not wish to lose their time while having their eyes treated), I wrote on prescription blanks without seeing the writing. Upon inquiry among the druggists I found that my writing was not worse than usual.

I learned a lesson by the experiment. I am convinced that all our eyes wear out more from abuse than from use. I believe that all eyes are made to exhaust themselves two or three times as rapidly as is necessary while at our ordinary avocations. Few trades compel the confining of the eyes to near vision all day long. Even mechanics, in filing, sawing, and fitting could be taught to favor their eyes by looking away from their work part of the time. Nor is it necessary for book keepers and students to pin their eyes down to the paper without intermission during their ordinary writing and studying. When I find patients whose eyes seem to be failing, in spite of proper correction, I tell them to favor their eyes, almost to the point of shirking their work, until they can change their occupations.

I was feeling very tired one night and being especially anxious to get some copy in line for the printer, I lay down and began to write in the dark on prescription blanks. I went through the work with little difficulty and then looked around for some handier way of doing the thing, and subsequently constructed the box as seen in the cut.

The writing device is ten inches wide and eight inches long. It has two rollers, one in each end, and upon them a long sheet of paper is rolled which is fifteen or twenty feet long and nine inches wide. The paper is fast, of course to both rollers, but on the start is nearly all wound on the back roller, so that the paper may be rolled on the front roller line by line as it is written. Common screw eyes are screwed into one end of each roller as shown by B B, and are used to roll or unroll the paper. A slot a quarter inch by one inch runs across the box as indicated at A, and is the platform upon which the writ-




ing is done, and over which the paper slips. The arrow, C, points to a wire which runs across the front of the lid or hand rest and is to guide the pencil in the dark. The lid is hinged to facilitate changing the paper or for copying on the typewriter. To the underside of the lid is attached a loop in which I keep a pencil so that the machine is always ready.

I have not gone into a very minute detail in describing the box, as I am not calling attention to this thing for the sake of the device, but for the sake of saving eyes and the general health of the fool geniuses and enthusiasts, who think they have messages to deliver, and have not the vital stamina left to deliver them.

By using a short pencil with this device I am able to write while lying flat on my back in bed with everything completely under the bed clothing, and therefore, I am not at the mercy of a cold room when I want to write.

It is my habit to keep this writing scroll near the bed all the time, and if I happen to wake up during the night and some particular idea possesses me, I reach for the scroll and jot it down, and if I feel like elaborating the subject I do so, and transfer it to the typewritten sheet in the morning.

I have always been able to write more fluently at night while

lying in bed. Theoretically, I suppose that this phenomenon might be attributed to the fact that the brain is better supplied with blood while the body is reclining. In my case, however, I attribute the difference to the perfect quiet which reigns through the house during the night. I have ten healthy children, who while they sleep quietly at night, make some noise in the daytime. I certainly have done and can do my best work at night, and of course, can rest my body, and at the same time write by using this machine.

I make the point of telling my doctor friends who come in to have their eyes examined to write large while the drops are in their eyes, so that they may have little or no trouble in writing their prescriptions. I likewise tell stenographers to get the habit of making their vicious characters much larger. It really is absurd for them to make them so small, as they rarely need preserve them, consequently they need not look nice. I also tell book keepers to make their figures and writing as large as they properly can. And, too, I try to impress upon type writers the importance of learning the keyboard without the characters marked upon the keys, so that they need not even look at the keys. Some typewriter schools, I believe, teach their students to be as independant of the keyboard as are piano players.

It must recur to every oculist that he has had patients who were weaving, book keeping, or studying hard, with eyes that would not register over six-twelfths with the best possible correction, and yet, notwithstanding this handicap, were doing good work. Who has not seen sweat-shop tailors with even as low as two-seventh vision working eighteen hours a day and seemingly doing as much fine work as their better-eyed competitors. Who has not told such patients to change their occupations, only to be laughed at. In truth, such patients frequently return for re-examination after a couple of years with little, if any, diminution in their vision. If, then, normal work can be and is done, with less than half vision, why should 6|v vision be used to its full limit to accomplish the same result?

There are, of course, two distinct fields for the use of this device. One will include those who are not bodily able to sit up and write as their ambitions may dictate, though their eyes may be normal. The other will include those who, owing to ocular defects, are compelled to give up writing. These latter

may be helped whether they are victims of unreasonable ambitions or not.

*Opaque Glasses.* Since I began to prepare this article I have had two occasions to order this method of relieving eye strain to be followed, and I find in this class of patients that it is a great advantage to have the patient sit up naturally and weare large opaque glasses over both eyes. They, of course, stop all converging and accommodating, and, too, prevent all straining to see the point of the pencil.

I have made for my own use a small pocket scroll on the same plan which I use in the cars. It may be used while it is still in the pocket, when no eye strain can occur, or it can be used on the knee, with or without the use of the eyes.

Besides stopping the deterioration of eyes, this machine will be a benefit to those who have become blind late in life, and who have not the opportunity to learn to write on a blind-man's typewriter.

High myopes, very high hyperopes, nicotine and alcoholic degenerates, and in fact all amblyopes could be taught to attend to their business and be more useful by learning the art of writing without the use of the eyes.

Not only should book keepers be advised to make their writing and figures large and round, but the book and tableting-sheet makers should be instructed to make their columns wider and rulings plainer. Some railroad companies have their tabulated sheets so closely ruled and cross ruled that it is impossible to make figures on them larger than two millimeters in height. And to make it worse, these sheets are about three feet long and two feet wide. Such a broad expanse of white shining into the eyes all day must be an awful menace to the retina.

Finally, I want to emphasize three points. First, that it is possible to educate healthy working people up to the fact that they may do the same amount of good work with half as much eye strain. Second, that it is possible for all grades of acquired amblyopes to write without the use of their eyes, and to do so nearly as rapidly and legibly as they were able to do before their eyes were dimmed. Third, that it is possible for bodily-wearied medical men to write vigorously while resting flat on their backs in bed.

1635 S. Broad St.

# A CRITICAL STUDY OF THE OCULAR ASYMMETRY OF THE FORMOSAN SAVAGE.*

CHARLES A. OLIVER, A. M., M. D.,

PHILADELPHIA, PENN.

Through the kindness of Dr. William P. Wilson, Sc. D., Director of "The Philadelphia Museums", I have been given the opportunity of critically studying an official and gold-medal, prize-obtaining series of life-sized, full-faced and profile photographs of a large number of Formosan Savages, which formed a part of the ethnological exhibit of the Formosan Government at the Louisiana Purchase Exposition held in St. Louis, Missouri, in 1904.**

All of the subjects were of Malay origin. They were representatives of seven of the eight tribes now in existence, and were expressive of those who are scattered over the northern and the central mountainous portions and the eastern plains of the main island.*** Their total population, six years ago, did not quite reach one hundred thousand.

These aboriginal Formosans are probably "the most primitive specimens of the human race that can be found anywhere". They have but little, if anything, to do with the present Japanese administration, being judiciously allowed to practically decimate themselves. Their customs and habits, their strict observance of tribal hatreds and want of groupal interrelationship; their ever-present activity and aggressiveness in head-hunting[1]; their proper gauge of age dependent upon ability and strength, without regard to years; their faithfulness in marriage; their family preservation and common protection (a true brotherhood as it were); their freedom from coarse blood dyscrasia and comparative immunity from gross microbic dis-

*Read before the 1910 meeting of the American Ophthalmological Society.

**The thanks of the writer are also due to Mr. Charles R. Toothaker, the Curator of the Museums, for his many courtesies; and to Dr. Bernard Samuels of Philadelphia, Penna., for much clerical assistance.

***The Yami grouping, which occupies the small island of Kotosho or Botel Tobago, situated some thirty-five miles off of the southeast coast of Formosa, has not, for several sufficient reasons, been used. The Peipo tribe has become so assimilated with the invading Chinese that it has become practically so much a part of them in both customs and language that it is almost impossible for foreigners to differentiate between the two.

1. Six special reasons for the practice are given. "Like fierce tigers, they range the woods and pounce on human heads."

ease; and their peculiar rites of burial are all of intense interest, and tend to illustrate the purity of the stock, and demonstrate its usefulness in the particular phase of investigation to which the writer has subjected it.

The special work made from a study of all of the mixed tribes (particularly with the immigrant Chinese) and the unmixed native groupings, has been limited in this contribution to the as-yet uncontaminated hostile savage "head-hunters" among the isolated northern tribes—particularly the Atayals, with a limited number of the Vonums and the Tsous, and a few of the Tsaliens. In consequence, this latter particular grouping of subjects, evenly divided among young adult males and females, embraces some extremely interesting and valuable material for a critical and a scientific (as far as yet possible), study of the external abnormalities and peculiarities of the ocular apparatuses of the true savages of Formosa from an anthropological standpoint.

The observations, which were carefully made by means of protractors, line measures, and gauged and ruled screens, upon a number of typical healthy specimens, taken at random from the excellent, large, and official collection at the writer's command, showed some ocular characteristics which may be conveniently noted as follows:

1. The skull formation, particularly among the Tsou grouping, was dolicocephalic in type and of good configuration.

2. The supraorbital ridges were strongly marked, rather straight, and with a tendency for the right ridge to an upward and outward deviation.

3. The infraorbital margins were well curved, properly shaped, and more evenly situated than the supraorbital margins.

4. The left eyeball was somewhat the higher in the majority of instances.

5. The right eyeball was nearer the median line in the greater number of cases.

6. The left eyeball was, as a rule, the more deeply set.

7. The corneæ were oval, their long axes, which were directed about five degrees downwardly and inwardly from the vertical meridians, averaging about ten to eleven millimeters in length.

8. The pupils were oval, their long axes, which were three to three and a half millimeters in length, being directed about three to five degrees downwards and inwards from the vertical meridian.

9. The interpupillary space averaged sixty-one to sixty-three millimeters in length; the distance from the right pupil to the middle of the nasal bridge being the lesser on the right side.

10. The palpebral fissure was, ordinarily, from two to three millimeters shorter on the right side than on the left; the right one averaging from twenty-five to twenty-seven millimeters.

11. The palpebral fissure was eight millimeters at its broadest portion, that of the right fissure being a trifle narrower.

12. The intercomissural distance equalled thirty-three to thirty-five millimeters; the lesser of the two portions from the inner comissures to the nasal median line, being on the right side.

13. The comissural angles inclined some five to ten degrees down and in from the horizontal meridian.

14. The primary folds of the eyelids were well marked, though shallow.

15. The secondary folds of the eyelids were very slight and extremely faint.

16. The eyebrows, as a rule, were not pronounced, the supercilia, like the hairs of the scalp, being coarse and straight.

17. The cilia were abundant, well curved, and properly formed.

In general, the malar ridges, as a rule, were quite prominent; the supra-maxillary prominences were rather flat; the nasal bridge was broad and depressed; the nasal alae were thick; the nostrils were well dilated, inequalities of the apertures being quite frequently noticed; the mouth was long; the lips were full, particularly the lower one; the oral fissure was partly open, showing the filed teeth in some instances; the chin was strong, though in a few subjects, particularly in the women, the inferior dental arch was somewhat depressed; the forehead was well shaped, and high in angle. The ears, especially the size of the pinna, its slant, the character of the helix

and the lobe, which in the Atayals was pierced to admit of the insertion of a section of bamboo rod fully one centimeter in diameter and ten centimeters long, were most excellent.

In not a few instances, particularly among the women, the left thyroid gland seemed somewhat enlarged without any evidence of proptosis. The ornamentation of the head, which consisted mainly in crowns of flowers and grass among the Tsaliens, was quite characteristic and appeared to advantage.

The tattooing[2], the character of which had its tribal significance of puberty, station, etc., was seen among the Atayals and a few of the Tsaliens.

2. The author is making a study of the colors employed and the designs used in tattooing; the latter of which, in all of the instances seen, were geometric.

# SOME IMPRESSIONS OF CERTAIN EYE AFFECTIONS OF THE NEGRO, AS COMPARED WITH THE WHITE MAN.*

JAMES L. MINOR, M. D.,

MEMPHIS, TENN.

I have been engaged in the practice of Ophthalmology in Memphis for nearly twenty-five years, and in spite of the fact that I have never desired them, I have had to treat a number of negro patients—estimated at about three thousand—at my office, in addition to which, I have seen an appreciable number at the Memphis City Hospital and at the Eye Clinic at the Memphis Hospital Medical College.

When I first began, notes were made and preserved of all patients seen, but I soon found that the negro was so unreliable in carrying out directions and in reporting for further treatment, that I dropped the habit so far as he was concerned. Hence I make no pretense to scientific exactness, and simply give impressions which have been made—salient points in my experience with certain diseases of the two races.

The negro, as a rule, is an irresponsible creature, and makes an undesirable patient, because he rarely follows directions unless their effects are immediate and pronounced. He acts as the spirit moves him, and is as apt to follow the advice of a casual passer-by, as his physician.

Some interestitng results bearing upon the subjects which I wish to discuss, were obtained through the examination of the eyes of the pupils in the public schools of Memphis, made under my supervision in 1896, and published in the N. Y. Med. Journ., Aug., 1907.

*Refractive Errors.* Among other things, it showed that refractive errors were found just one-half as frequently in the negro, as in the white.

*Myopia.* That no case of myopia was found.

*Hyperopia.* That the hyperopes grew more rapidly less in the higher classes of the blacks, than in the corresponding grades of the whites.

*Read before the American Ophthalmological Society, Washington, D. C., May 11th, 1910.

*Acuteness of Vision.* And further, it showed that the proportion of normally seeing blacks was two and a half times greater than the whites, *i. e.*, badly seeing negroes 1 to 15, badly seeing whites 1 to 6. This is partially explained by the uncorrected myopic whites; but when they are left out, the badly seeing whites were 1 to 10 only. The comparative absence of the higher degrees of astigmatism and hypermetropia in the negro doubtless accounts for their better average normal vision.

(Number of white pupils 3181; number of negro pupils 1849.)

Coming back to the impressions and experiences from my own practice, I will begin by referring to:

*Myopia.* I have examined only two cases of myopia in the negro; one of these was in a teacher and the other a seamstress—and both were mulattoes.

*Astigmatism.* I recall only three cases of astigmatism. In each the amount was slight, and of the hyperopic variety, and all were mulattoes.

*Hyperopia.* Hyperopia has been infrequently observed, and I have never seen a high degree of it in a negro.

*Presbyopia.* Cases of presbyopia rarely present themselves. The fact that the negro, as a rule, does little close eye work, is certainly a factor in the non-occurence of myopia, and will explain the infrequent complaints, though it does not prove necessarily, the non-existence of other refractive errors, as well as presbyopia.

*Muscular Insufficiency.* I recall only one case of muscular insufficiency (Exophoria) in the negro, and that was in the person of a mulatto seamstress, generally run down and weak from overwork and bad hygienic surroundings.

*Strabismus.* I never examined a single case of strabismus in the negro, though I have seen two cases of convergent squint, one in the person of a boot-black at my hotel, who, when told that he could have his eye straightened, said, as God had made him that way, he "'lowed he would make no change"—and another in a child recently brought to the office, but coming at a late hour, was told to return the next morning for examination, who dropped the matter, and never sought relief.

*Glaucoma.* My experience has been that glaucoma is more

frequently seen in the negro than in the white. Statistics[1] show that about three cases of glaucoma occur in every one thousand eye patients seen. This proportion would entitle me to nine cases, all told—one case every two and one-half years, and yet I will average three or four cases a year. I recall one winter, operating on four cases of glaucoma in the negro.

*Trachoma.* My experience has been that trachoma is seen as frequently in the negro as in the white—and probably more frequently. I see five or six negro patients a year, with trachoma, which is fully double the number I would be entitled to if the disease existed in the blacks, in the same proportion that it does in the whites, *i. e.*, about two and one-half per cent.[2]

*Tolerance of Disease.* Another thing which has impressed me, is that in the—

*Gonorrheal Ophthalmias* of the adult and of the new born, the disease is less severe, and the corneal ravages less in the negro, than in the white,—and this in spite of the fact that treatment is often unsought, and when attempted, is usually most imperfectly carried out.

*Iritis.* That iritis—to which the negro is very prone, on account of the general prevalence of syphilis in the race—regardless of treatment, does not seem to be so severe during the attack, nor so serious in its after effects, is a fact that has often impressed me. They often continue at work regardless of the disease; and not infrequently, when examined for other troubles, it will be found that extensive posterior synechia, and even exclusion of pupil, have existed for years without ill effects.

212 Randolph Building.

1. "Eye Diseases, Nomenclature and Statistics of," by J. L. Minor. Ref. Handbook of the Med. Soc., supplement, 1893.

2. Ibid.

# VISION AND THE MENOPAUSE.*

FREDERICK A. KIEHLE, M. D.

PORTLAND, ORE.

The eye is part of the brain. A glance at its embryology impresses this fact upon us. Its formation is initiated by a protrusion of the lateral walls of the primary cerebral vesicle, forming the primary optic vesicles. These latter detach themselves more and more from the brain until finally they are connected with it only by the slender peduncle known as the eye-stalk. This eye-stalk, originally hollow, gradually becomes a solid mass,—the optic nerve,—and the external layer of the eye cup, to which it is attached, forms the retina. The shortness of the optic nerve allows close intimacy of eye and brain, and being the largest cerebral nerve its fibres are many and permit of an elaborate distribution to this highly sensitized end organ, the retina.

Thus the eye can be regarded as part of the nervous system,—a portion of the brain itself. Hirsch says: "In order fully to understand the nature of the various affections of the optic nerve we must always bear in mind the fact that the optic nerve is not a nerve in the same sense as the other peripheral nerves, but forms a part of the brain, so that it would be much more appropriate to speak of the optic tract rather than of the optic nerve, even in its most peripheral parts. The optic nerve represents a system of neurones and corresponds in every sense to other systems, such as the posterior columns or the pyramidal tracts, and its affections in the various diseases of the central nervous system are entirely analogous to the affections of the other systems."

And we find in fact that the eye shares often in diseases affecting the nervous system, and it suffers early and continuously in many hysterias and neurasthenias.

Further, of the twelve pairs of cerebral nerves, five pair have distribution in whole or in part to the eye bulb or to its auxillary neighboring structures, while the sympathetic, through filaments from the cervical plexus, contributes the possibility of ample reflex symptoms.

*Read at the meeting of the City and County Medical Society of Portland, Oregon, February 16, 1910.

A comparatively short series of cases exhibiting great similarity in symptoms and general characteristics has recently, with the above facts in mind, impressed upon me the query whether we may not with good reason look for visual difficulties in women particularly at the time of the menopause. The cases in mind have been women at or near the change of life who presented no abnormality of the eye ground or media, no lid irritation or muscular imbalance, who yet, after careful correction of all refractive errors and of presbyopia when present or suspected, continued to complain of subjective symptoms referable to their eyes. These symptoms were varied and numerous,—itching, burning and scratching of the lids, hyperlacrimation, unusual dryness of the eyes, dimness of vision, especially in artificial lights, floating bodies before the eyes, soreness of the motor muscles, hypersensitiveness to light, light flashes, vertigo referable to vision, sensations of fulness in the eye and the head, and last but by no means least, headaches.

The climateric is the physiological epoch in the life of woman when, fruition completed, with still a long period of active physical life before her, the bodily organism must undergo a readjustment. The organs of reproduction being no longer required, a new distribution must be found for the considerable flow of blood and of nerve force that formerly passed to this important region. As a resume of the principal systemic features of the menopause I cannot do better than quote Howard Kelly (Medical Gynicology, p. 88):—"In some women menstruation continues regularly to the time of the menopause and then ceases suddenly and without disturbance either general or local. In the greater number of cases however, it is preceded by a longer or shorter period of irregularity extending over from a few months to several years. During this time the patient may be subject to a variety of discomforts, most of them due to disturbances of the vasor-motor system, such as sweating, palpitation of the heart, flushes, and confusion of ideas. The nervous system is also much affected in some instances and the patient becomes more or less neurasthenic. Occasionally the mind suffers more than the body and there is temporary insanity (p. 90). A certain amount of pelvic pain exists in a large number of women without in any way indicating an abnormal condition of the organs concerned in menstruation or a disturbance of the general health. Reflex symp-

toms, headache, nausea and a variety of other disturbances are also often present, and within moderate limits, need not be regarded as of any consequence. If present in a marked degree they are usually the expression of an over-taxed nervous system asserting itself at a time when it is capable of least resistance, and plainly demanding relief."

The condition of the eyes as affected by the advent of the menopause appears to be a subject all but disregarded in an otherwise abundant literature. All that I can offer at the present time is in the nature of a few suggestions as to the possibility of their inter-relationship.

Roughly speaking, the menopause begins between the 40th and 45th years. This also is the time when presbyopic changes in the eye begin to manifest themselves. By presbyopia we mean recession of the near point of vision, due to lessened elasticity of the crystalline lens and greater homogeneity of its layers, thus refracting light less strongly than before, together with lessened activity of the ciliary muscle. These changes in men and women alike are the cause of great difficulty with near vision at this time of life and call attention to eye symptoms more or less insignificant in individuals who previously had enjoyed such perfect vision that they had hardly been aware of having eyes. Where there is a neurasthenic tendency these symptoms are exaggerated in the mind of th patient and often persist as part of a neurasthenic habit after the complete correction of the presbyopia. All the symptoms noted above, as well as many more of a more general nature occurring in this class of patients, viz.: melancholia, coldness of hands and feet, and buzzing in the ears, are possibly explained by vaso-motor changes and reflex irritability. It is easy to believe that mere exposure to light, transmitted by this super-sensitive end-bulb to an unduly sensitized brain might be sufficient irritation to cause persistent and intractable headaches.

An interesting sidelight is thrown upon the question by the fact that many women and girls, especially those who suffer persistently from dysmenorrhoea, experience many and varied ocular symptoms at their menstrual periods. Many discover early that at such times they are wholly unable to read or to use their eyes for other close work without causing eye tire and headache. It is probable that at such times, when vaso-

motor changes are at their height the eye, as part of the nervous system, shares in the disturbance and is rendered more than ordinarily sensitive to external influences.

The menopause is often the starting point either of an ordinary neurasthenia, or of what I believe may be termed an ophthalmic neurasthenia. While the following paragraph from DeSchweinitz (Posey & Spiller, p. 689, "The Eye and Nervous System") does not refer particularly to women at the menopause, it is significant of what may occur at this period. He says: "It seems to me that there is no doubt, and I find that this is the opinion of some accurate neurologists, that neglected presbyopia or even a failure of accommodation for which no relief is sought, even before the presbyopic age, is frequently the cause of hypochondriasis and mild forms of melancholia. The patients cannot be made to understand that it is the physiological failure of accommodative power, and believe that some form of unusual disturbance is arising which will later eventuate in blindness. The irritating inconvenience of oncoming and increasing presbyopia doubtless aggravates these mental conditions under many circumstances. That eye strain in general may produce hypochondriasis is well known."

We know that this period is often the beginning of malignant changes in the reproductive organs and from the standpoint of the subject of our paper it is natural to inquire what if any ocular diseases mark this period, and whether we may look now for definite pathological changes in the eye. As a matter of fact no condition of disease occurs at this time sufficiently often to be characteristic of the period. An acute optic neuritis is described by Swanzy as arising from "spontaneous amenorrhœa or even irregularity of menstruation and the climateric" but it must be added that nothing is known of the connection between the uterine and the ocular disorder. Senile cataract rarely begins before the 50th year. Changes in the fundus and media due to the onset of arteriosclerosis may appear at a comparatively early age in victims of chronic interstitial nephritis and of syphilis, but arteriosclerosis does not usually manifest itself until after the age of fifty. Hence, in women at the menopause the ocular symptoms that interest us must be regarded as purely functional, resulting from a readjustment of the circulation and of the sympathetic nerve

flow, rather than as having any basis further than the purely physiological one of presbyopia.

The persistence of these symptoms may be only while this readjustment is taking place, *i. e.*, during the period of cessation of the menses, or they may continue indefinitely, inasmuch as, as has been said, the climacteric may be the beginning of neurasthenia. After careful correction of refractive errors, preferably under a mydriatic, and full correction of all presbyopia present, the most that we can do in these cases is to extend to the patient the very reasonable hope that the distressing subjective symptoms will abate with the readjustment of organic conditions, which fortunately can be looked forward to at a not very distant date.

# OCULAR SIGNS FREQUENTLY ASSOCIATED WITH VASO-MOTOR DISTURBANCES.*

HOWARD F. HANSELL, M. D.,

PHILADELPHIA, PENN.

The ocular signs referred to in the title of this paper are not structural, and depend for their presence and association with each other, upon causes unconnected with the function of sight. They are significant of an excitation or apathy of the sympathetic or as it has been more recently named the autonomic nervous system, and are probably directly due to abnormal action of the unstriped muscular tissue of the lids and orbit, and of that in the coats of the blood vessels. Normal rotation of the eyes in any direction, or concentration of both eyes upon a near or distant object is accomplished with associated contraction or relaxation of the unstriped muscle radiating forwards and backwards from the orbit fascia, and forming no unimportant part of the muscular apparatus of the eyes. Moreover, all movements as well as all variations in the act of seeing, contribute to momentary changes in the calibre of the vessels and to momentary retardation of the venous blood in its passage out from the eye and orbit, and while the action of the straight and oblique muscles, the ciliary body and the iris is directly controlled by the cranial nerves, and is well understood, the role of the autonomic system in its healthy or diseased state should also be considered.

The fundamental abnormalities or affections underlying the disturbances of function of the autonomic system cannot be accurately designated. They may be described rather as peculiarities or idiosyncrasies, inherited or acquired, than as actual disease, and yet they are more than these words convey. Our present classification of disease according to pathology and symptoms aims at the isolation of definite associations of distinct manifestations of structural change and functional disturbance repeated with significant frequency in a sufficient number of individuals to entitle the various groups of symptoms to characteristic titles. Underlying the associated symptom groups and lesions known as nephritis, diabetes, rheuma-

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rism, tuberculosis, and the like, of which pathology and specific etiology may be known or unknown, is a condition or a tendency toward the development of that particular form of disease which the particular patient may evidence. It is this predisposition or susceptibility manifested differently in different individuals, which may be fundamentally responsible; and its discovery or determination would be an most important fact in preventive as well as in curative medicine. The borderland of many diseases is not clearly defined, overlapping of symptoms and pathology is the rule, and even here the primal etiology may be identical. Much more frequently those diseases that have no unchangeable symptom groups and are recognized by one or more distinguishing features, and by little that is characteristic in their pathology, have many features in common. They are separately classified according to prevalent dominant symptoms or other special features, a classification which is correct, no doubt, according to present knowledge. A deeper study into a larger mass of material than has been hitherto collected may demonstrate that while differences may be found in the manifestations of each affection, these dissimilarities may be less dependent upon the etiology than upon personal idiosyncrasy or responsiveness in the individuals attacked; or in other words, upon the state of the cerebro-spinal and sympathetic nervous system, and the circulatory apparatus. Disturbance of the function of one or all of these systems increases receptiveness, and, according to the character or intensity of the disturbance, is the development of a series of symptoms designated more or less accurately as a particular disease.

Vaso-motor instability or ataxia, (the latter name originating with S. Solis Cohen), (Am. Jour. Med. Sci. Feb., 1894), is a fundamental condition from which many of the so-called specific diseases arise. Cohen thus defines it: "By the term vaso-motor incoordination or ataxia it is proposed to designate not a disease, but a fundamental disorder out of which, through the incidence of varying exciting causes, varying syndrome groups may be developed."

The symptoms are not constant although they occur in association so often that they may be said to indicate the affection. The most characteristic and frequent symptoms as described by the author cited are as follows:

1. An unusual degree of responsiveness of the skin to small irritations such as a distinct red or white line persisting for several minutes, made by gentle pressure, or scratching with a pencil or other partially blunt object, technically dermographism and in marked cases, factitious urticaria, and occasionally a peculiar reaction to silver, a probe or coin drawn across the cheek or forehead leaving a black line, supposed to be a deposit of silver sulphide.

2. An exaggerated tendency to blushing.

3. Minute cutaneous angiomata.

4. The "patriotic nails", or cyanosis of the nails changing the uniform normal pink color into blue or violet at the base, a whitish broad area in the middle and a crescentic line of red at the tip.

5. Moist and cold or hot hands, and bodies abnormally sensitive to temperature changes.

6. Tachycardia, occasionally enlargement of the thyroid gland, intestinal neuroses, headache, nervousness, irritability, excitability, exaggeration or perversion of any of the normal functions.

The presence of all or most of the symptoms in one patient indicates in positive terms a disturbance in the vaso-motor control. The nature of the disturbed function may not, in the first stages of the affection be determined either as irritative or paretic, and only later by further development and consistency of the symptom group is its character definitely known.

The collective eye signs to which I desire to call attention include those pointing to irritation of the sympathetic system and frequently associated with them indications, also, of relaxation. They may be explained by disturbed function of the unstriped muscular fibre in the orbit, which modifies the voluntary muscular action as well as the calibre of the vessels. The ring or cuff of unstriped muscle which almost completely surrounds the anterior part of the ball may be regarded at the origin, and the soft tissue of the lids and the inner commissure as the insertion of the anterior part of the muscles. The fibres which run backwards through the orbital fat, and also those which to a limited extent, constrict the opening near the orbital apex, must also be considered in their effect upon the action of the voluntary muscles and upon the calibre of the blood vessels. The venous system of the orbit is most complex. The veins

are numerous and large. They anastamose freely, and discharge their contents through three different outlets, posteriorly in the cavenous sinus, temporalwards into the facial vein, and medianly by a large vein which passes over the root of the nose.

The ocular signs of vaso-motor ataxia are:

1. *Venous hyperemia of the retina.* The hyperemia of vaso-motor ataxia is difficult of diagnosis. Pulsation of the veins, contrast between the color of the arteries and veins, an excessive amount of deficiency of chorioidal pigment or other absolutely normal findings must be considered carefully in making a diagnosis. The absence of all ocular defects which might be considered a cause, such as visual dulness, limitation of field, or organic changes—retinal edema, pigment hypertrophys, or exudation,—is consistent with venous hyperemia, physiologic as concerns the eyes, but pathologic in its indication of a systemic disturbance. Dr. Cohen has referred many cases to me for an eye report, and I have found in the majority of patients hyperemia so constant as to warrant the acceptance of its presence as confirmatory of general vascular disturbance. In no case has the hyperemia been marked enough to warrant the suspicion that we were dealing with any form of ocular disease, or any form of eye-strain which might account for the hyperemia.

In these patients I have almost invariably found tortuosity and a slight increase in diameter of the veins, most noticeable in the largest veins. The smaller veins and the disc capillaries are not more numerous and the disc itself has the pinkish color of the healthy eye.

Unless one is on the lookout for modifications in the usual venous appearance in the retina, these changes might easily be passed without note, or if noticed not considered as abnormal beyond physiologic limits. The cause for the dilation of the veins is obscure. It is undoubtedly a systemic one, and responsible also for the superficial vascular disturbances; namely, the "patriotic nails", and the skin reactions to gentle irritations—dermographism, factitious urticaria, exaggerated pilomotor reflex and blushing.

2. *Stelwag's sign* or a permanent increase in the vertical diameter of the commissure is common in exophthalmic goitre, but it is, as Michel says, not pathognomonic of the disease. It is an early and constant sign of vaso-motor ataxia in pers-

in whom the thyroid gland is not enlarged. Yet its frequency in Basedow's disease, which is looked upon as a combination of a constitutional nervous affection and glandular disease, and its presence in vaso-motor disturbance in which there is neither enlargement of the thyroid nor exophthalmus would point to a common origin of the two affections. Momentary or transient widening of the commissure accompanies psychic excitation, such as intense emotion, astonishment or fear and is also found in individuals who, on account of defect in vision, make conscious effort to see more clearly, and in neurasthenia and hysteria. Retraction of the lower lid, alone or in association with retraction of the upper lid, is also found. Both may be unilateral or bi-lateral, persistent or intermittent. These latter affections and vaso-motor ataxia may have a common eitology, namely a disordered sympathetic nervous system. In those individuals in whom no organic lesion is known to exist, the widening of the commisure may be traced to an irritation of the sympathetic ganglia in the neck, and consequent contraction of the unstriped fibres situated in the superior, anterior portion of the orbit, and terminating in the tarsus of the upper lid. Clinically irritation of the smooth muscle causes a widening of the commissure, paresis, a moderate ptosis, which in contrast to third nerve paralysis, is known as "ptosis sympathetica." (v. Michel).

Cohen says in describing the sign (Trans. Asso. Am. Physicians, 1902): "There is usually a tendency to contraction of the upper-eye-lid exposing the sclera above the cornea. When not spontaneous, it may be developed by having the subject fix his eyes upon a point at the normal level of the pupil, and telling him to open his eyes as widely as possible. I have looked upon it as a larval condition of the palpebral contraction known as Stelwag's sign of exophthalmic goitre."

Risley reported before this society in 1896, a case of vaso-motor ataxia, in which Stelwag's sign was well marked. The right upper lid was strongly drawn backward. The patient was a highly nervous woman of forty-two, with slight exophthalmus, enlarged thyroid, and marked tachycardia, an example of Grave's disease, yet with the stronger probability of belonging to the category of vaso-motor ataxia.

3. *Graefe's Sign.* Lagging of the lid as the ball is rotated downward or a modification noted by Cohen, the jerky descent

of the lid. This sign may be monocular or binocular, may be difficult to detect at the time of examination, and present in exaggerated forms on other occasions. It is frequently associated with Stelwag's sign but may exist independently. Its presence as a sign of vaso-motor incoordination and of exophthalmic goitre should be carefully differentiated from a similar imperfect descent of the lid found in high myopia, anterior scleral staphyloma or tumor of the orbit, all of which affections by the mechanical alterations of the relations of the lid to the ball will produce it. Also from the pseudo-Graefe lid, described by v. Michel as an intermittent or rather a rhythmic or periodic jerking backwards of the upper lid in consequence of paresis or chronic spasm of the levator palpebrae, two apparently opposite conditions, which, however, at some stage of their existence give rise to the same symptom. While the Graefe lid sign is a common one in exophthalmic goitre, it is also to be found frequently in individuals who have neither an enlarged thyroid gland nor other symptom of Graves' disease. Late in the history of some patients exophthalmic goitre and tachycardia may be developed and in them it may be regarded as one of the prodromes. Other and more fortunate patients in whom the affection is early recognized recover entirely, and never show any symptom of Graves' disease. Closely allied in etiology to Graefe's sign is the Gifford sign. The upper lid can be turned only with the greatest difficulty, and then, at the expence of so great a strain on the tarsal conjunctiva, that the latter is entirely blanched in the centre by pressure. (Oph. Rec. June 2, '06). The involuntary resistance of the upper lid to eversion, Gifford believes to be due to irritability of Müller's muscle, the unstriped muscular fibre above referred to. Retraction of lower lid, I have seen with Cohen a number of cases.

4. *Tremulousness of the lids.* This sign is less frequent than the foregoing, but is quite common. It is binocular, more marked in the lower than in the upper lids, and developed when the lids are lightly closed. Like the other eye signs it is subject to variations in degree. It may disappear to recur at irregular intervals. It may be associated with nystagmus, and with tremor in other parts of the body.

5. *Pigmentation of skin of the lids.* Jackson and Mead. (Ophthal. V. 4, p. 695,) Teillars, (Arch, d'Ophtha., May,

1905) and Cohen (N. Y. Med. Jour., Feb. 19, 26, Mar. 3, 1910) refer to sharply defined and symmetrical pigmentation around and beneath the lids as occasionally present. Cohen says it is not exceptional. In the cases that have come under my observation, it has not been noticed in any instance. Changes in pigmentation of the skin in patches in other parts of the body, both increased in amount beyond the normal, and decreased or absorbed so that the skin becomes white and sharply outlined from the adjacent healthy colored skin, are common and, that alterations in the amount of pigment in the lids have not been noticed by me, is simply accidental.

6. *Pupillary inequalities.* Individuals with vaso-motor ataxia are emotional and in a more or less constant state of exaggeration of normal conditions. The pupils are as a rule in conformity with the super-sensitiveness of the nervous system controlling the muscles and the vessels, dilated and responsive to light and accommodation, bilaterally and equally or unilaterally or unequally. Cohen states that the contractility of the muscular fibres of the iris seems to be soon exhausted and that a vacillation of the pupil (almost a condition of hippus) is developed by repeated or prolonged testing.

Other ocular signs occasionally seen, but not frequently enough to warrant their enumeration among the constant signs, are: drooping of the lids of one or both eyes, partial and intermittent, and partial loss of convergence, Moebius sign, (loss of convergence) not to be mistaken or unctional exophoria, or exotropia, but manifest only upon efforts at extreme convergence, and narrowing of the commissure, usually unilateral and some times marked, due to spasm of the orbicular fibres in the lids.

In determining the presence and importance of the eye signs and contributing actors in the diagnosis of vaso-motor incoordination, the state of the refraction and the health of the eye should be considered. High myopia will often produce widening of the commissure and hyperopia and astigmatism, amblyopia of one eye, disease of the orbit or of the ball, will cause interference with normal muscular action and inequality of the pupils. The eye signs are significant and dependable only in the absence of local causes.

# CLINICAL REMARKS ON 348 CASES OF INJURY TO THE EYES.

Gaylord C. Hall, M. D.,

Louisville, Ky.

Injuries to the eye, whether industrial or otherwise, always hold something of vital interest, since the visual defects resulting often force a man to give up his occupation or even take away his opportunity of gaining a living for himself and family.

He or they are thus thrown on the community for support or material assistance so that the subject becomes an economic one.

The recent agitation relative to the employers liability act promises still further to extend the subject as a public question and as we stand practically as the arbiters or appraisors of the damage done, we should invest in each case sufficient time for a thorough examination, careful registration before and after treatment of the visual acuity; painstaking treatment of all injuries however slight. Since we may be called upon at any time to testify regarding the extent or permanency of the injury of a workman, we must needs be careful to have a written record of all our cases, made at the time of the examination, that we may be able to answer all questions with assurance.

I trust that it is unnecessary to add that the highest sense of honor should actuate all our dealings and we should be true to ourselves above all things while doing our duty both to the employer and employee.

The question of visual acuity previous to the accident is one of the most delicate we have to handle and an infinite amount of tact is often required.

There is probably no way to ascertain this in some cases, so that consequently there will always remain an opportunity for unscrupulous persons to bring fraudulent actions for damages.

A request for information concerning my experience with eye injuries and a desire to take stock of my work, prompts the publication of this report.

For the most part it is but a very commonplace recitation, though here and there have appeared unusual features that are worthy of record.

Most of these cases were seen in connection with work for a large manufacturing concern and in many places the records are not so complete as I would like them, but the workmen object to reporting back if once they are relieved, so that the end result in visual acuity is often in doubt. Of this I am certain, that men working on emery wheels or in sand blasts suffor a considerable loss of vision as a result of their work.

I tested a number who had been so employed for several years and it was rare to find one who could read over 6|xii.

This brings up the question of glasses or shields for the protection of the eyes and I have tried for over two years to have some such device generally adopted.

I was surprised at the opposition it provoked until I found that the workmen all complained that the dust and sweat blurred the lenses from the start and later the emery cut the glass so that they were in danger of more serious injury from the blurred glasses than would be inflicted on the unprotected eye by the emery.

This opposition seems hard to overcome and while a foreman or skilled workman, who has to go to the wheel occasionally to sharpen his tools takes measures to protect his eyes, the average workman is either too careless and shiftless to take the trouble to keep the lenses clear.

Two other things that would tend to minimize the risk from injury that I have succeeded to some extent in enforcing, are immediate attention after injury and prohibiting fellow workmen from meddlesome interference by attempts at extraction of foreign bodies and the like.

I find a record of three hundred and forty eight cases that are mostly industrial injuries. I have classified them as follows:

| Foreign bodies in cornea:— | Number of cases. |
|---|---|
| Uncomplicated | 103 |
| Previous attempts at removal | 63 |
| Ulceration | 42 |
| Multiple foreign bodies | 35 |
| Total | 243 |
| Injured more than once | 37 |

| | |
|---|---|
| Injury to cornea without foreign body:— | |
| By a twig | 1 |
| Glass | 4 |
| Nail | 1 |
| Brass | 1 |
| Wood | 1 |
| Heavy blow | 1 |
| Ulceration of cornea | 5 |
| Trachoma with genorrheal Oph | 2 |
| Total | 258 |
| Conjunctivitis Chemical: | |
| Steam | 1 |
| Acid | 2 |
| Ammonia fumes | 2 |
| Conjunctivitis from dirt | 2 |
| Subconjunctival hemorrhages from blows on eye | 11 |
| Body imbedded in sclera:— | |
| Emery | 1 |
| Needle | 1 |
| Nail | 1 |
| Burns:— | |
| Of cornea only | 4 |
| Of eye lids only | 3 |
| Of lids, sclera and cornea | 27 |
| Gunshot wounds | 2 |
| Injury by tennis ball | 2 |
| Strabismus following injury | 4 |
| Refraction after injury | 4 |
| Iritis before injury | 1 |
| Emphysema of orbit | 1 |
| Wounds of eye lids | 1 |
| Other eye blind by previous injury | 3 |
| Rupture of globe | 1 |
| Blindness from severe blow | 2 |
| Penetrating wounds of globe | 13 |
| Total | 89 |

The bulk of these cases, two hundred and forty-two, are for cign bodies on the cornea. These substances were chiefly emery, sand and chips of metal. They were all treated in the same manner and in no case did we have any serious trouble.

The method of treatment I found most useful was cocainization, removal with spud, cleansing the eye, usually the instillation of argyrol, later yellow oxide ointment and lastly a bandage.

Some may consider these preparations too elaborate, or even unnecessary, but I always feel safer when this routine is carried out. On several occasions I have been forced to omit the bandage, the other eye being blind.

I have classified the cases as I did, because I found where previous attempts had been made at removal or where the body

having remained in place for several days, it was surrounded by a grayish ring of necrotic tissue, that the workmen invariably lost more time than in the uncomplicated cases.

This is of interest in showing the necessity for early attention and non interference at the shop. Multiple foreign bodies seemed to have no especial effect.

I noted those injured more than once to show the liability to subsequent injuries, by reason of the first affecting the vision sufficiently to render the workman more liable. This I do not think I have proved, since so many other factors enter into the consideration of such cases. The chief of which is carelessness, probably caused by drinking; the nature of the work has an influence, those who work continually at the wheels being naturally more liable to injury. There are besides other factors too numerous to mention.

Of the injuries to the cornea without a foreign body being present, none deserve special mention, they were all treated by cleansing, oil dressing and occlusive bandage. I found the use of dionin to be especially helpful in causing these small *recent* macula to disappear.

The four cases of serious ulceration will be treated of at some length.

Case 1. H. K., 35 years, seen March 2, 1907. Emery in left eye several days previously. Pieces located at center of cornea and lower temporal quadrant, eye red, light hurts. Cocaine, removed with spud, argyrol, yellow oxide ung. bandage. Patient is a syphilitic and has scars on hard and soft palate. Surrounding both foreign bodies is a ring of ulceration. Two days later this ulceration had extended and was rapidly advancing into the clear cornea. They were curetted and cauterized under cocaine, atropin instilled and patient put on mixed treatment, under which all symptoms rapidly disappeared. Visual result good.

Case 2. G. B. M., 61 years, seen Dec. 26, 1907. Three months previously had cinder imbedded in cornea. This was removed by a colleague but a large ulcer resulted, situated nearly over center of cornea. Complains that he sees better with right eye closed and wants to know if anything can be done to remove scar.

O. D. finger at 2-3 M. O. S. 6/7.5 improved to 6/6 with + 0.50 S. P. Scribed Sat. Sol. Ammon. chlorid once a

day for right eye. Returned Feb. 17, 1908. Opacity less dense, vision O. D. fingers at 6 M. Was told to continue treatment.

Case 3. N. W., age 35 years, colored. Seen Jan. 14, 1909. About middle of December something flew into eye on street while driving a team. Several persons tried to extract body and a doctor treated it, prescribing some eye salve. It felt all right for nearly a week when it suddenly began again to pain and stick. Has been getting worse ever since, though he has been under treatment by a competent oculist.

Examination showed a large ulcer on cornea with deposit in anterior chamber nearly one-fourth inch high. Vision movements of hand at 3 M. Pupil moderately dilated. Intense ciliary injection. Anterior chamber very deep. Pneumococci were obtained from edges of ulcer. Hot compresses, atropin, cauterization of ulcer, sub-conjunctival injections of saline and bichlorid were tried without result, except that cauterization seemed temporarily to stay the advance of the ulceration. The whole cornea became involved, yet the ulcer did not perforate but the hypopyon in the anterior chamber steadily increased. The tension rose and pain became so severe that it could not be controlled even by opiates. An anterior sclerotomy was done and the anterior chamber flushed with saline. This relieved the tension and consequently the pain, but the eye was lost. Enucleation was advised as the eye passed into a condition of pan ophthalmitis. This was refused and the patient passed from observation. This was evidently an example of an ulcus serpens caused by a pneumococcus infection.

Another case exactly like this one was seen at the City Hospitals. The patient, a carpenter, was struck in the eye by a piece o board while knocking off the woodwork from some concrete work; an ulcus serpens developed, pan ophthalmitis supervened and the eye was enucleated. This case was also seen late.

Case 4. P. T., 32 years, seen Sept. 16, 1909. Roumanian laborer, struck in right eye with some sand from a casting one week before. Now in - inflamed eye, very red, tender, profuse lacrymation and photophobia, muco purulent discharge. Has a grayish ulceration on upper temporal quadrant. No foreign body. Eye was cleansed, cocainized, ulcer curetted, dionin, atropin, yellow oxide ung., bandage. A brisk purgative was

also given. Sept. 7th, improved; Sept. 18th a band starting from the ulcer was seen extending down towards center, accompanied by a leash of vessels. Ciliary injection. Sept. 20th, opacity still advancing and from opposite side a similar condition is noted, though less in extent. These two progressed in spite of treatment until they had almost met. The pain, ciliary injection, photophobia had remained stationary. I had been using atropin in substance, dionin, hot applications and keeping bowels active with a mercurial. I added to that daily instillations of sat. sol. of ammon. chlorid. into the eye and through an interpreter ordered a generous diet, since I had reason to suspect that the patient was not getting sufficient food. I also gave a tonic of iron, quinine and strychnine.

Whether the ulceration had advanced as far as it could and the disease was self-limited, or whether the later additions to the treatment solved the question I am unable to say, but from that time improvement was prompt; in about a week the eye was practically well and at the expiration of another week I made an attempt to test his vision. He seemed to see as well with one eye as another, but as he spoke no English and was very stupid, it was rather difficult to come to any definite conclusion.

The two cases of trachoma with gonorrheal ophthalmia are interesting, since they show the effect of close contact producing infection. The cases occurred simultaneously; both were in Roumanians who were equally dirty, unintelligent and both beautifully, though not blissfully ignorant of all hygienic rules. They lived in the same room and presumably made free use of each others articles.

Case 1. M. S. Seen on May 24th for trachoma. Would not take regular treatment and refused operation. On June 30th returned with hot sand in eyes from day before. Had also profuse purulent discharge. This was found to contain gonococci and the presence of urethral gonorrhea was established. Patient was sent to hospital. After one month he was discharged with clear cornea and practically cured of his ophthalmia and trachoma. It was necessary to do a double canthotomy on account of swelling of the lids and contraction. The treatment employed was saline irrigation frequent enough to keep things clean. Nitrate of silver 1 per cent. by doctor twice a day. 50 per cent. Argyrol solution every two hours.

Case 2. M. E. Seen July 2, 1906. This patient was previously known to have trachoma; also got eyes full of sand while shaking out a flask. Has pain, redness, photophobia, purulent discharge. Contains gonococci, probably infected from other case. Refused hospital treatment. Case treated ambulatory for three weeks. Pus and gonococci disappeared, though symptoms of trachoma persisted in left eye. July 25th canthotomy and expression done on left eye lids. Prescribed copper sulphate, two grains to ounce, after reaction subsided and patient rapidly improved. Stopped treatment before recovery and lost sight of.

Realizing the medicolegal significance that these cases might have, I called in another physician and together we collected the pus, stained, mounted, examined and labeled the slides and while this proved not to be necessary in this case, I think it a very wise precaution.

I had five cases of chemical conjunctivitis. One from steam and two each from acid and ammonia. These were treated with an oil dressing followed by argyrol by the patient. They all recovered.

Two cases of conjunctivitis from dirt came under observation: they were both children and in both severe.

Case 1. L. B., age two years, June 22, '08. One week ago had dirt thrown into left eye. Two days later eye became swollen and painful and a purulent discharge developed. Family physician prescribed remedies without effect. Microscopical examination of pus not recorded. When seen there was a free discharge of pus, eyelids swollen and oedematious. Eye first cleansed carefully; cornea unaffected. Prescribed argyrol 25%. Disease persisted for several weeks, due chiefly to indifference and carlessness at home, the child being cared for by neighbors as the mother was in an advanced stage of tuberculosis.

Case 2. L. D., nine years, May 11, 1908. Right eye. Injured last fall by getting some rust from wire screen in it. Sore for several weeks, partially recovered. Since that time has had recurring attacks of inflammation in eye. Eye looks smaller, due to a ptosis. Eye is red and inflamed; considerable lacrymation and photophobia. Says she sees all right. Conjunctiva is red and velvety. Around periphery of cornea are a number of scars from old ulceration, together with a number of fresh ulcers resembling ruptured phlyctenules. Center of

cornea is free. Gave argyrol, dionin, hot applications and yellow oxide ung. locally. Syr. iodid of iron internally.

Recovery with disappearance of ptosis in about five weeks. I had eleven cases of subconjunctival hemorrhage all of which absorbed under hot applications and dionin without incident.

Of the three cases of injury to the sclera, one is of no importance; the other two present interesting features.

Case 2. M. S. Seen Dec. 7, 1907. Right eye. Piece of needle from a sewing machine struck her in eye yesterday. Has practical absence of symptoms except slight sticking feeling. On sclera to nasal side, one-fourth inch from limbus is seen a black speck. Cocaine. Magnet applied. Piece of machine needle one eighth inch long extracted. Fundus clear, no hemorrhage, disc slightly hazy, vision normal, no after effects.

Case 3. T. N. Carpenter. Seen Sept. 24, 1909. Right eye. Several hours previous, while driving heavy nails, a piece struck him to outer side of eyeball. Attempts at extraction at factory failed. Has a wound one-eighth inch back from limbus below the horizontal meridian. Shows dark from foreign body. Cocaine. Eye cleansed. When eye was placed before magnet and current turned on, a distinct bulging was seen and pain felt. Piece of metal $\frac{1}{8}$ by $\frac{1}{8}$ by 1-32 was extracted from wound of entrance. The piece evidently stopped at the sclera, for there was no hemorrhage seen from within and vision equalled that of good eye. No after effects.

The next subject of importance is burns—thirty-three cases. Of the cornea alone there were four cases, all superficial with recovery without appreciable loss of vision.

Of the eyelids, only three cases that healed without incident and without contraction or deformity.

Of burns involving the lids, sclera and cornea, there were twenty-seven cases, some of them severe. Practically all of these cases were molders or helpers, and all were burned by molten metal. In six of the cases pieces of the metal were extracted at the office from the bed it had formed by being caught in the lower cul de sac.

Case 1. J. M. 33 years. Molder. Seen March 12, 1906. Had hot iron splashed into right eye few hours previously. Burn involves both lids, conjunctiva of lids and ball and lower nasal quadrant of cornea. Wound cleansed. Oil dressing applied.

Brisk purgative given. A wax splint was applied between lids and ball to prevent any adhesion and wound dressed daily.

This splint was described in an article in the Journal of the American Medical Association, February 24, 1906.

Wounds healed in about five weeks, the eye was very sensitive and profuse lacrimation occurred whenever exposed to light or heat, making it almost impossible for him to work. Patient also complained of difficulty in seeing with either eye, whereas he said his eyes had always been good before.

June 25th, refracted. Palpebral fissure smaller than fellow. Slight scar on cornea lower nasal quadrant. Vision O. D. 6/12 O. S. 6/6. Under Homatropin, muscles, fundus, pupils, tension normal.

Accepts O. D. 6/7.5 with + 1.00 $\bigcirc$ + 0.75 C ax 90°. O. S. 6/6 with + 1.00 $\bigcirc$ + 0.75 C ax 90°. Ordered less 0.50 S. Constant use.

Glasses corrected difficulty and patient had no further trouble.

It was interesting in that the injury brought out a latent refractive error.

Case 2. W. P. P. Seen July 9, 1906. Right eye. Burned June 29th by hot iron. Eye hurt considerably, but he returned to work. Has had no medical attention. Eleven days after injury, when first seen, lids were greatly swollen. Burn extends on skin surfaces of upper and lower lids. Both tarsal plates largely denuded of conjunctiva and covered with purulent secretion. Has a small ulcer on cornea, lower temporal quadrant. Vision 6/22.5. Eye cleansed; argyrol, atropin, bichlorid vaseline, bandage. Eye healed in two weeks. Restoration of vision. Where burn was on lids' margin the hairs came in irregularly at first and gave some trouble, but this later subsided without the development of a dystrichiasis. The remarkable feature of this case is that a man could go for nearly two weeks with so extensive a burn and even attempt to work.

Case 3. Mrs. H. P. 39 years. Seen July 11, 1906. When a baby fell into fire and practically destroyed the sight of the left eye. Lids healed in severe ectropion; the lower lid pulled down on cheek, leaving the ball exposed; the cornea almost completely opaque, altogether a horrible deformity. Right eye good up to one year ago, when sight began to fail. Has been growing worse ever since. No pain or inflammation; everything gets dark at times, at others myriads of stars seem to dance before

the eyes. Vision O. D. fingers at 4 M. O. S. fingers at $\frac{1}{2}$ M. Pupils respond to light and convergence. Tension normal. Examination by Ophthalmoscope showed disc blurred with increased tortuosity and fullness of veins and contraction in arteries. The terminal twigs are often interrupted by embolic defects surrounded by patches of atrophy. A large spot of chorio retinitis exists between macula and disc. Sample of urine examined with negative results. Has odor which seems to come from nose. Tenderness over right frontal sinus and antrum, but both showed clear on transillumination. No pus in nose, though occasional crusts are expelled in morning. Tenderness probably due to scar tissue.

Visual field found much contracted; scotoma shows corresponding to degenerated area. Diagnosis, probable specific chorioretinitis or degeneration due to condition of burned eye. Put on mixed treatment and instructed concerning plastic work on left side of face. Returned in two weeks improved. Returned July 29th, improved, fingers at 6 M. August 28th, improved, fingers at 8 M. Mercury beginning to affect gums. Instructions given regarding this. All operative work refused. Shortly aterward patient was lost sight of.

Case 4. M. I. Seen February 10, 1907. Left eye. Burned at 3:30 a. m. Seen shortly afterward at foundry, when a piece of metal adherent to upper lid was removed. Burn involves both lids outside, both upper and lower tarsal conjunctiva and nasal half of cornea. Eye cleansed, oil dressing applied and patient sent home. Seen next day at office, when atropin was instilled and eye redressed. Vision fingers at two meters. Given purge. Eye dressed daily for three weeks. Vision steadily improved. Discharged without deformity March 16th. Vision 6/ix.

Case 5. E. W. H. 28 years. Molder. Seen May 4, 1908. Right eye. One half hour before coming to office some molten metal struck him in eye, causing much pain and great swelling of lids. Eye is very red. Burn extends over lower outer part of cornea and over sclera of lower part of globe, particularly to outer side, where a piece of metal $\frac{1}{4}$-inch long and 1/16-inch in thickness had imbedded itself. This was extracted. The sclera was deeply burned at this place; conjunctiva of lower lid, especially to outer side, is extensively involved. Cocaine, eye cleansed, atropin, insertion of a wax splint to prevent adhesion,

oil dressing. Patient returned to work May 25th, but suffered some discomfort until the middle of the following month. Vision unaffected, but complained of profuse lacrimation on exposure to strong light or from the heat and glow of molten metal.

Case 6. G. R. S. 38 years. Seen March 15, 1909. Right eye. Burned while pouring shortly before coming to office. Burn involves both palpebral margins, destroying lashes, and that portion of the lower lid at the puncta lacrimal; the conjunctiva of lids and sclera in lower nasal quadrant. There is also a large burn on cheek below eye. Small burn of lower puncta of left eye. Had also numerous small burns over face and head, neck and shoulders. Eye very much swollen. Cornea intact, but could see nothing on account of the swelling. The eyes were cleansed of dirt and metal; atropin instilled; a wax splint inserted and an oil dressing applied. Patient was given a solution of aluminum acetas for local application to reduce swelling; aspirin ten grains every three hours for pain. Patient was nervous and irritable, so wax splint had to be removed.

Eye was dressed daily for ten days, when patient, who lives on a farm near the city, found daily dressing irksome and came in every third day. The swelling had now gone from the eye, but a ptosis remained and the palpebral opening was very narrow. Despite our efforts to prevent, a symblepharon developed at the inner portion of the lower lid and the globe, causing displacement of the puncta, which was occluded by the scar. The puncta of the left eye had also been sealed by the burn so the patient was troubled by a very profuse epiphora. I relieved this in the left eye easily by reopening the puncta, but the same procedure in the right eye failed on account of the distortion of the lid.

On May 18th, two months after injury, the drooping of the lid being still pronounced and drawn tightly over the globe, and, furthermore, the cilia showing a tendency to turn in, thus irritating the globe, I did a canthotomy, relieving the tense condition of the lids, widening the fissure and allowing the cilia to turn out by a slight eversion of the lids. Patient felt much relieved after this healed and eye had a much better appearance, though still red. The chief source of complaint was the symblepharon, which prevented an upward movement of the globe. I waited to correct this till I felt most of the contrac-

tion had taken place and the eye was white. On June 14, 1909, I released the symblepharon and did a plastic to restore the lid and globe to the proper position. This I accomplished as follows: by dissecting a flap from the globe, leaving it attached to the lids; I then freed it and dissected out the adhesion to the globe, this reestablishing the lower culdèsac and allowing free upward movement of the eye. I then anchored my conjunctival flap by passing a thread through each end of it and suturing it deep down in the pocket I had just made, bringing the ends of the threads out through the skin and tying them over pads on the cheek. The denuded portion on the globe I covered with flaps brought down from each side. This healed without incident and there was practically no contraction of the cavity thus formed. By reopening and dilating the puncta again we practically overcame the epiphora. The patient was very much improved in every way, though the eye bothered him at times.

On July 30th he came in with the statement that he had been at work and all the old trouble was as bad as ever. I found a large grain of sand sticking on the center of the cornea. Removal of this caused his symptoms to disappear and he returned to work.

August 9, 1909 Returned. Complains of light hurting eyes.—Inability to open right eye.—Inability to see.—Claims that both eyes are much worse since the accident. Left eye was injured sixteen years ago by drill filings, but claims that vision was unaffected till accident to right eye. Patient was in fine mood to bring suit for damages against the company, claiming that flask or something was defective.

Vision showed O. D. 6/45 — O. S. 6/30.

Scopolamine. Pupils dilate equally, media clear, fundus normal.

Retinoscope. O. D. [illegible] O. S. [illegible]

Oblique illumination shows faint macula nearly central on left cornea and smaller one below. Lower portion of lens opaque. Right eye shows very small central macula due to recent foreign body. Very slight cloudiness of cornea; lens unaffected, media clear, fundus normal. Deformity of lid margins causes irritation of cornea.

Accepts: O. D. 6/15 ?? with + 1.50 S. ⊂ + 0.50 C ax. 90°.
O. S. 6/15 ?? with + 1.50 S. ⊂ + 0.75 C ax. 90°.
Ordered less 0.50 S.

Saw patient after this and he seemed satisfied with glasses and was having practically no trouble with eyes. The scar on right lower lid was white and glistening, but was not very noticeable. I expect a further increase in vision of the right eye as time elapses.

The after effects of burns have been one of the chief points of interest. The drooping of the eyelid and the extreme sensitiveness of the eye to wind, cold, light and heat, accompanied by the profuse lacrimation all point to an agency at work not included in the other form of injuries. These symptoms persist long after all the wounds have cicatrized and the only explanation that seems feasible is that changes taking place in the scar are responsible; a delayed toxemia, or an obscure trophic change the result of close contact with heat and light rays or both.

The points I have found most useful in the treatment of burns are as follows: First, thorough cleansing of the eye under cocaine and removal of all pieces of metal or other substances. This is immediately followed by argyrol, which is not only soothing, but has a temporary staining effect which serves to define the burned area and enables us to remove all mucus strings which are colored and might otherwise escape detection.

An oil dressing with an occlusive bandage is now applied. The oil consists of either Yellow Oxid, a grain to a dram, or Bichloride of Mercury Vaselin 1-10000.

The general treatment I consider equally important; first a brisk purgative is given containing mercury. The combination I have found most useful is as follows: Calomel, gr. 1; Pulv. Rhei., gr. 1; Pulv. Ipecac, gr. 1/6; Sod. Bicarb., gr. 1/2; Res. Podophillin Aloin, aa gr. 1/10. For one pill. One of these is taken every hour till four or six are taken, and salts the following morning. I believe that a mercurial is essential and purgatives without the mercury will not produce such happy results. The general glandular stimulation produced by the mercury is probably the explanation.

This is repeated every five to seven days. It prevents the development of that toxemia which is so troublesome after

burns. This toxemia seems to affect the recuperative power of the patient. The wounds become sluggish, angry looking and refuse to heal. General constitutional symptoms, such as slight fever, increased pulse, general malaise and aching, are often observed.

By instituting eliminative measures at once, all this is prevented and the wounds heal rapidly and have a healthy appearance. If any tendency to sluggishness arises it can be remedied by lightly touching the burned areas with Silver Nitrate, dram to the ounce. For the pain I usually give ten-grain aspirin powders every three hours if necessary and use opium only as a last resort.

For the swelling externally, when severe, nothing has given me such good results as the Acetate of Alum in one per cent. solution soaked into gauze and laid on affected parts.

Dionin to clear up recent corneal opacities also has its place, but if the opacities are older and dense enough to be designated nebula the Sat. Sol. of Ammon. Chlorid has yielded me best results. A meager experience with thiosinamine on scar tissue was productive of no results.

I have had two cases of gunshot wounds of the eye to deal with.

Case 1. Age 28. Mountaineer from Harlan county. Accidentally shot at a turkey-shooting six months previously with a shot gun at close range. He must have been somewhat out of range, since but few of the pellets struck him. Those that did however, did irreparable damage, as one entered each eyeball, practically destroying the sight. Patient could only distinguish the hand movements at eight feet. Had to feel his way about.

In the right eye the shot penetrated the sclera above a bluish streak marking its progress. The cornea was clear but the lens opaque, the shot had penetrated behind its attachment. The capsule has evidently been ruptured, since most of the lens was absorbed, leaving only a tough capsule. Projection prompt. In the left eye the shot had penetrated at the sclero-corneal junction in the horizontal meridian. Iris incarcerated, lens completely absorbed. The vitreous occupied by a mass of inflammatory tissue that had pushed the retina forward in the temporal half, so that it could easily be seen through the dilated pupil. Tension of both eyes. X-ray photograph. A discission was done

on the right lens with success and an appreciable increase in vision, but not sufficient to justify the fitting of a lens.

The retina was found to be intact and the patient could count fingers at five meters without a lens. He was kept under observation for about ten days with steady increase in vision, but finally grew restless and insisted on returning home. He was given full instructions and ordered to report back for glasses as soon as his eye ceased to improve. He left the hospital and no word was received from him. The case was very pitiable, for the man was practically destitute. A fund of about fifty dollars had been raised among his friends to pay his railway fare and expenses while in the hospital. A family physician accompanied him here, put him in the city hospital and pocketed the money himself; so that the patient was left in a strange place without even enough money to get back home. We finally located his family counselor who generously forwarded his fare.

In addition to this, yet a young man, he was married and had as all mountaineers do, a large family of children, seven or eight, I believe. These, with the wife were left without any means of support. I regretted not to have learned the final outcome of the case.

Case 2 was more fortunate. H. K., age 31. Seen Dec. 15, 1909. On December 9th, while hunting, received a portion of a charge from an automatic shotgun, which was accidentally discharged while lying in a a fence corner only six feet distant from the patient. Charge tore away hair on right side of head and sprinkled about twenty shot along side of face and in orbit.

These were extracted by family physician for the most part, who sent him to me Dec. 15th, when the swelling of the lids had been reduced sufficiently to show that he had considerable impairment in vision. Examination showed considerable swelling of eye and face, the scars of shot wounds mostly healed, about four had penetrated the orbit, one at supraorbital foramen causing an anaesthesia of the skin of the forehead. No shot had entered the eye. On separating the lids a subconjunctival hemorrhage is seen to lower temporal quadrant, evidently made by being struck with a portion of wadding, for it caused rupture of the intraocular vessels also. Eye movements limited. Vision fingers at two meters, central vision best. Iris not dis-

colored. Pupil dilates evenly. Has blood in vitreous. Fundus details not discernible.

Ordered purgation with salts daily. Sweats, hot applications to eye, dionin, acetate of alum 1% for swelling.

Dec. 28, '09. Swelling of lids and face gone. Eyelids can be opened about two-thirds. Hemorrhage of conjunctiva about absorbed. Movements of eye more free. Fundus details hazy as before. Has floating body in anterior chamber and possibly a fresh hemorrhage in vitreous since the fundus reflex is less than before. Sees best to right; central vision poor.

Patient's vision gradually improved and was finally completely restored according to his own statement.

He could not be induced to come to the office for a final examination of the eye, but assured me that he could see as well as ever and he could see no use in fooling with doctors when he felt all right.

I have had two cases of injury to the eye by a tennis ball. One resulted merely in a slight discoloration of and dilation of the iris and rapidly subsided after three days with normal vision; the other was more serious.

L. L. W., age 29 years. Seen July 10, 1909. Left eye. Struck in left eye with great force with a tennis ball; seen shortly after the accident. Patient was in great pain and the eye was much swollen. Patient noticed that eye was blind. Examination showed a hemorrhage in the anterior chamber nearly filling it, but not dense enough to obscure the iris except below, where a clot had formed. The iris was irresponsive to light and dilated. The anterior chamber was very deep. Tension normal, perception and projection prompt. Eye was carefully cleansed. Atropin instilled and patient put to bed and cold applications made. A brisk purge was also ordered and aspirin grains ten, every three hours for pain.

July 11th, passed restful night. Eye quiet, hemorrhage partially cleared, fundus examined and found intact, treatment continued. After four days hot applications were ordered instead of cold with dionin three times a day for three days. Argyrol 25% for external irritation.

Eye much improved. Treatment continued. In about three weeks eye was practically well; vision was normal, but pupil was still dilated and patient complained of pain on close work

of which he did a great deal. This later cleared up and he had no further trouble.

Four cases came with a history of strabismus immediately following injury and the relationship appears so intimate that I report them without comment.

Case 1. J. S., 19 years. Seen Jan. 24, 1907. At age of six years was hit on the head by a pile of lumber. Since then left eye has been turned in. Vision fingers at one meter. Eye deviates so far inward that only a portion of the cornea is visible. Action of external rectus not sufficient to straighten the eye with other closed though attempts are made.

Right eye vision 6|vi no trouble. Operation Jan. 26th. Tenotomy of left internal rectus after which external could turn eye outward without difficulty, though when at rest left eye still deviates inward. External rectus was advanced and eye slightly over corrected. Cosmetic result good.

Case 2. Is of extreme interest in many ways and will be reported in detail.

E. S., age 28 years. Seen Dec. 24, 1907. One half hour before coming to office right eye was injured by the explosion of an electric light bulb. No glass in eye. Large subconjunctival hemorrhage on lower part of globe. Vision O. D. 6 xv. O. S. hand movements at one meter. Said eyes had been bad since age of fourteen, when in consequence of an injury to the head by a rock, the left eye had become practically blind and had turned out.

Right eye also bad. Ophthalmoscopic examination showed numerous atrophic patches from an old chorioiditis in the right (good) eye. The left eye, except for a pallor of the disc, seemed normal. Hemorrhage of conjunctiva cleared up in several days without incident. Jan. 18, 1908, at 2 P. M. was struck in right eye by a chip of wood while opening a box with a cold chisel. Splinter stuck in eye and was removed by patient. Eye immediately became blind and he was led to the office by a workman. Examination showed a perforating wound of cornea in upper nasal quadrant. Iris prolapsed. Lens ruptured and disorganized, opaque. Anterior chamber abolished. Tension. Vision hand movements one-third meter. Cocaine. Eye cleansed. On attempting reposition of iris considerable lens matter escaped; this was encouraged and I succeeded in removing most of it after which the iris was replaced and freed, a drop of eser-

ine instilled. Bichlorid vaselin and an occlusive bandage. Patient moved to hospital with orders for a brisk purge, followed by a saline. Rest in bed. Hypo morphine if necessary for pain. Jan. 19th, eye quiet, pupil slightly dilated, iris free, no pain, corneal wound closed, anterior chamber reformed. Ordered atropin-dionin three times a day, hot applications.

The left (blind) eye had swung into its normal axis and I encouraged its use in every way, training the eye to see by first identifying an object by the sense of touch. The improvement was gratifying from the start; soon large objects could be made out. In the meanwhile the right eye was progressing finely. Jan. 29, '08, needled lens. Feb. 4th, lens absorbing. Projection prompt except above, iris dilated, no irritation, anterior chamber restored, tension normal. Feb. 10th, tenotomy external rectus of left eye. Feb. 18th, eyes practically straight. O. D. still improving. O. S. examined under atropin. Retinoscope shows horizontal 7.00, vertical + 8.50 reverses.

Sees O. S. 6|45 with + 6.00 S + 1.50 C ax. 180° O. D. Plano. Ordered constant use. Feb. 24th, tenotomy of external rectus of right eye. Visual axes parallel. March 12th, right eye clear. Examined, O. D. 6|xxx with + 12.50 S ⊃ + 1.50 C ax. 90°. Left eye still improving. Fundus of right eye uninjured. March 8th, re-examined. Accepts O. D. 6|22.3 with + 11.50 S ⊃ + 1.50 C ax. 90°. O. S. 6|xxx with + 6.00 S ⊃ + 1.50 C ax. 180°. For near add + 2.50 S Utq. The vision rose gradually in the right eye till it equalled 6|xv as before the accident. The corneal scar did not interfere at all with the vision. Vision remained stationary in left eye after right eye came back into use, but its improvement had been remarkable. It was due, I believe, to its enforced use and it illustrates the value of long training in all cases of amblyopia in cases of strabismus.

It is interesting to note that the accommodation in the left eye was practically nil and he readily accepted 2.50 S for near. With it he reads Jaeger 2.

Patient returned to work and had no further trouble until Nov. 8th, 1909, when he stated that his vision began to fail about a week ago. Close inspection revealed a very thin diaphanous membrane over pupil. This was divided without incident and vision was restored.

Case 3. Miss V. D., age 16 years. Perforating ulcer in lower nasal quadrant in infancy. Iris incarcerated, pupil distorted, dilates slowly, lens partially opaque. Has had convergent strabismus ever since. Position of the pupil external to center of cornea seems to favor this. First did tenotomy of internal rectus and later an iridectomy, freeing iris and restoring pupil.

Visual axis parallel, though the sight in the right eye is very poor.

Case 4. S. B., age 4 years. Seen Oct. 22, 1909. Hit in left eye with a stick when two years of age. Since that time his left eye has turned in. Doesn't see so well out of left eye. Has convergent strabismus, left eye turning in about twenty degrees. No scars on cornea. Ordered atropin ½% in both eyes for two weeks. Returned, convergence improved, eyes nearly straight. Retinoscope showed + 4.00 in both eyes, neutralizes shadow. Ordered + 2.50 S Utq. constant. Atropin in good eye and shield over good eye one hour each morning and evening. Jan. 15, '10, wearing glasses without trouble. Axis straight when glasses are worn, but squint returns on removing them.

I observed several cases where the injury seemed to bring out or emphasize a latent error of refraction; two of these cases have already been reported under burns. The other two are somewhat different and justify reporting, since they were cases of amblyopia of many years standing and the men attempted to blame a trivial injury for the condition of the eyes.

Case 3. M. F. Seen April 2, 1907. Removed a piece of emery imbedded on cornea of left eye. Claims that one year ago similar accident occurred when the foreign body was removed by my office associate, since which time the eye has been blind. No scars are visible. Has perception of large objects only. No previous disease of eyes, no blows or falls, eyes never crossed.

Vision O. D. 6 vi, O. S. movements of hand 3 M. Ophthalmoscope shows no appreciable change in either fundus. Patient's habits are bad, both drinks and smokes a great deal. Ordered solution atropin 1% in left eye. Reported after three days. Ophthalmometer showed axis 80°, 170° retinoscope, vertical + 7.00, horizontal + 10.00 reverses. Accepts O. S. + 5.50 S ⊃ + 2.50 C ax. 80°. Vision is clearer but no letters are read. The situation was explained to the patient and his complaint ceased.

Case 4. G. L. Seen June 12, 1907. Has piece of emery on center of cornea left eye. Cocaine, removed with spud, yellow oxid ung., bandage.

June 14th, complains of inability to see out of injured eye. Vision O. D. 6|ix, O. S. hand movements at 6 M. Pupils dilated with cuphthalmin. Media clear, fundus of left eye indistinct, though no gross lesions are visible. Under atropin three days later the following was found. Retinoscope shows right eye + 1.50 vertical + 2.00 horizontal reverses. Left eye + 2.50 vertical + 5.00 horizontal reverses.. Accepts O. D. 6|vi with - 0.50 S. ⊃ - 0.50 C ax. 90 . O. S. 6|22.3 with - 1.00 S. ⊃ 2.00 C ax. 90 . Ordered less - 0.50 S.

The next case illustrates an extremely dangerous class of cases from a medicolegal point and one where a positive opinion concerning the previous condition of the eye could not be given. In the two cases just preceding it was not a difficult matter to find a reason for their poor vision. Here a reasonable doubt exists.

J. M., 38 years. Seen Nov. 11, 1909. Injured Nov. 5th. While grinding a brass fitting something flew into eye. The next day at the foundry he claims that a foreign body was removed. The eye felt better afterward but suddenly got worse the night of the 9th. Examination shows eye very red, watery and tender. Cornea hazy, iris discolored, tension normal, anterior chamber unaffected, pupil contracted. Vision hand movements. Has a foreign body imbedded near center of cornea surrounded by a ring of necrotic tissue. Cocaine, eye cleansed, removed foreign body with spud, atropin instilled. All attempts to dilate pupil failed. Has a complete posterior synechia occlusi pupilla due to *old* iritis. Denies syphilis. No previous eye trouble. Drinks heavily. Gave brisk mercurial purge, followed by salts and used atropin in substance. The redness and pain were relieved after several days but pupil was still occluded. After pain and redness disappeared patient seemed satisfied and voluntarily ceased his visits.

The denseness of the adhesions and completeness of the synechia in this case points to an old iritis even in the absence of any previous history. There is enough however, in the six days that elapsed before treatment, to have caused an iritis, to say the least.

Cases of this kind with previous injury to the eye, could, if so disposed, following an injury however slight, make fraudulent claims for damages and very likely obtain a verdict, since it is an undeniable fact that the eye is injured.

I observed one case of marked emphysema of the orbital tissues following fracture of the nose. The case is as follows:

J. S., age 28 years. Seen July 28, 1909. Injured on night of 27th, by sticking a ladder through a rapidly moving fly wheel. The ladder was knocked from his grasp and struck him across the face, breaking his nose and causing various other bruises and contusions.

Free hemorrhage resulted and on blowing the nose the eyelids were suddenly violently swollen and puffed up. The tissues were later suffused with blood, giving the patient a ghastly appearance.

Patient seen next day. Nasal bones depressed. These were elevated and held in place by splints within the nostril. The emphysema of the orbital tissues was quite marked and crepitus easily elicited. Patient had been very much alarmed when accident occurred. Swelling subsided after ten days, under compresses of 1% solution of aluminum acetas. No deformity of nose.

One case of severe wound of the brow and lid was observed with uneventful recovery and no deformity or scarring.

C. S. Seen Dec. 1, 1908. Hit by a leather belt on side of head and knocked down. Has a cut which extends from near middle of brow downward irregularly and outward involving upper lid and continuing down over temple for about four inches. This had extended to the bone and the whole displaced upward by the force of a glancing blow, giving the appearance of a flap hanging from above with its free edge along the brow. The wound was carefully cleansed and closed with eight silk sutures. Wound healed by first intention. No drooping of lid resulted and scar was not noticeable.

Several cases came to me with one eye injured and the other already blind from a previous injury. They are not worthy of special comment except that it compels one to put them in a hospital for comparatively trivial injuries of their only eye, since one should not take any chances with such cases and where a bandage is required it is manifestly impossible for them to get about.

One case of rupture of the globe came under observation.

The case is as follows. P. P., colored, age 43 years. Seen 1-24-10. On night of January 8th was assaulted and hit on head and over eyes with brass knuckles. Vision immediately abolished. In addition he had a deep cut for the full length of the supraorbital margin, several smaller cuts in temporal region near external canthus and a long cut at lower part of orbit. These were attended to by the family physician and they healed without incident except that contraction of the wounds greatly narrowed the palpebral fissure. When first seen, Jan. 24th, wounds were healed but scar plainly visible. Elevation of upper lid impossible, due to paralysis of levator. Eye ball shrunken, filled with blood, cornea discolored and opaque. No light perception. At upper outer side a wound is seen closed by conjunctiva but rupture of sclera is disclosed. Enucleation advised and accepted. Under general anaesthesia Jan. 31st, the eye was removed with some difficulty on account of the dense inflammatory exudates encountered above. After the removal the rupture could be plainly seen with nature's attempts at repair. Uneventful recovery. Incidentally a canthotomy was done to facilitate removal of globe and to widen the palpebral fissure. A glass eye was inserted on the 10th day but a complete ptosis still persisted. This was treated with electricity and massage and at date of writing the ptosis has almost disappeared, though the drooping is still to be noticed.

Two cases of blindness were observed following severe blows on the eye. The one a recent case, required enuclation for the relief of pain and for fear of the integrity of the other eye. The second showed symptoms in the good eye after the lapse of thirty-one years and required enucleation.

Case 1. J. R. S., age 60 years. Seen April 4, 1908. Left eye. Two weeks ago was struck in eye with a fork handle. This caused great pain in eye and over side of head with redness, swelling and loss of vision. Saw no doctor for four or five days. Later a doctor prescribed an eye wash. Eye became steadily worse. Examination shows eye intensely injected—cornea hazy iris discolored pupil contracted small deposit on anterior chamber. To temporal side on sclera a distinct bulging is seen with a small whitish spot on summit. The eye is extremely tender. Pain extends over whole side of face interfering with sleep. Pupil dilates under atropin slowly. Details of fundus

very indistinct, tho to outer side, corresponding to the bulging on the sclera, is a dark object of irregular shape. Vitreous filled with floating bodies. Disc and vessels barely visible. With Würdemann's transilluminator the body to outer side fails to transmit the rays and a distinct shadow was cast.

Puncture over the summit of the bulging was made and pus was evacuated. This was cleansed but did not serve to limit the spread of the infection. All symptoms progressed in spite of treatment. Globe became quadrate. The great pain which even opiates served only partially to relieve, the age of the patient and the drain on his vitality, which was severe; and the fact that the sight of the eye was lost coupled with the importunities of the patient and his family induced me to do an enucleation. This was done under ether May 6th. Patient left the hospital the next day and had no further trouble. Fitted eye at end of one week has good motion.

On section of the globe in the horizontal meridian the vitreous was found contracted and disorganized.

A distinct abscess cavity occupied the outer anterior portion of the globe. This was apparently between the sclera and choroid, pushing the sclera, retina and ciliary body towards the axis of the globe.

The ciliary body was greatly enlarged.

Case 2. Mrs. V. B., 32 years. Seen March 14, 1909. Left eye blind since age of one year. Injured by being shot in eye with an arrow. No penetrating injury. Ball shrunken cornea opaque ball very hard no pain tho eye gets red and waters at times. About four years ago right eye became weak, red and watery. Had spots before it and shadows. This disappeared after a time, but now for last few weeks all the old symptoms have returned with renewed intensity and are rapidly getting worse. Reading and sewing are difficult. O. D. Vision 6/5. Under atropin Retinoscope + 3.00 reverses. Accepts + 2.00 S.

Right eye showed a faint ciliary injection. Was sensitive to light. Tension was slightly minus.

In view of these facts, together with the past history, I felt that an enucleation was the safest course to pursue, even tho distance vision was undisturbed. This was done the following day under cocaine, supplimented by ethyl bromide when the optic nerve was to be severed. On section of the globe the case

was shown to be a bony degeneration of the choroid. An eye was fitted on the eighth day to the great improvement to the patient's appearance.

There were fifteen cases of penetrating injuries to the globe that came under observation. Of these cases nine were old and six recent. Of the nine old cases two eyes were quiescent and nothing was done. The seven remaining cases were divided as follows: Three cases were operated for the removal of the opaque lens.

Case 1. E. F., age 18 years. Seen July 2, 1906. At age of seven was hit in left eye with a rock. Remembers nothing at all of condition at that time. Eye has since been blind. Vision O. D. 6/v—O. S. light perception. Traumatic cataract. Wished to have lens removed for cosmetic reasons. Examination shows cornea clear, iris active, lens entirely opaque, tension normal, projection prompt. June 5th, operated. Discission—no reaction. Ordered atropin—dionin—hot applications. June 30th, Linear extraction of cortical portion of lens—treated as before—no reaction. Oct. 8th, Capsulotomy.

Nov. 25th, O. S. 6/ix with + 11.0 0S ⊃ + 1.45 C ax. 60°. For near add + 3.00 S. This glass was ordered with an opaque glass over good eye for occasional use to maintain the vision in case of accident to the good eye.

Case 2. Wm. H., age 35 years. Seen Jan. 30, 1908. Trouble began in right eye about five years ago. Left eye has been blind for past twenty years as the result of being struck by a rock. Vision O. D. fingers at 2M. O. S. fingers at 6M. Iris active—tension normal. Scopolamin in both eyes. Right eye lens nearly opaque, Senile cataract. Red reflex at periphery. Did a preliminary iridectomy—later extraction. Ultimate vision with correction 6/ix. Let eye—showed a scar on cornea from wound. Lens partially absorbed. Adhesions to iris in lower nasal quadrant. The first procedure was to divide the adhesions which was accomplished without reaction. After ten days section was made and nucleus removed. The removal was difficult and some vitreous was lost. Considerable reaction followed. This gradually subsided and vision finally equalled 6/xxx with correction.

Case 3. A. T. G., age 45 years. Seen Jan. 10, 1910. Left eye blind for many years as the result of a penetrating wound with steel. Has a hard complete cataract with thickened cap-

sule. No adhesions to iris. Has never given any trouble. No light perception. Patient came for an opinion as to desirability of removing same. Operation was advised against. Three days after this, while doing some heavy lifting, he felt something give way in eye. Came to office the following day suffering considerable pain. Eye very tender. Ciliary injection. Iris contracted. Cataract with capsule attached dislocated into anterior chamber. Section with removal of lens. Uneventful recovery.

Four eyes were enucleated to save the fellow eye. Of these the first is of extreme interest and will be reported in detail.

Case 1. F. R., age 30 years. Steel worker. Seen Jan. 2, 1906. Right eye. Last week vision became blurred. No pain or inflammation. Left eye totally blind for eight years as a consequence of a piece of steel entering eye. This was removed but an infectious irido clycletis supervened which destroyed the sight. Enucleation was advised at that time by the doctor in charge but was refused. Globe is now soft, shrunken and tender. The right eye also was injured two years ago. Hit with a piece of iron without a penetrating injury. Tension minus in right eye. Vision fingers at 3 M. Fundus hazy. Floating bodies in vitreous. Pupil dilates unequally and slow. Under homatropin accepts O. D. +2.50 S 6/ix. Patient was told of the impending danger and advised to have the old, totally blind eye removed, even tho we could not promise that it would influence the oncoming inflammation in the right eye. The left eye was enucleated Jan. 4th, under cocaine (*ethyl bromide*). Patient was put on the Bichlorid of Mercury and Iodid of Potash internally. Atropin, dark glasses, hot applications locally. Nutritious, easily digested diet ordered. Alcohol and tobacco interdicted. Bowels kept open.

In spite of all that could be done the vision steadily became worse until he had to be led to the office. The mercury and iodide were pushed to the utmost tolerance and interrupted for general tonic medication. This condition of affairs kept up for about four months, when a rather sudden change for the better supervened after which vision slowly improved until patient could go about again alone. On May 8th, patient could read 6/xxx and was beginning to talk about going back to work, but finds it impossible to go back to his old position as

structural steel worker. Seen last on July 16th when eye was still improving.

Case 2. P. S., age 24 years. Seen May 12, 1906. Three years ago suffered a penetrating injury of left eye. Now soft and tender—filled with a mass of inflammatory products. Right eye vision 6 vi. + but vision blurs at times and eye is tender. Fundus shows vessels of retina hazy—outlines of disc blurred. In view of the fact that the man lived far in the country where he could not hope to receive any attention, together with the symptoms shown it was decided to enucleate. This was done under general anaesthesia May 16. The eye was very large and presented a very large posterior staphyloma. Recovery without incident.

Case 3. G. W. K., age 48 years. Seen July 8, 1908. Left eye injured some years ago. Blind since that time. Has been more or less trouble ever since. Two weeks ago thought he got a piece of hay in eye. Since then it has been very painful and discharged much matter. Has a large ugly ulcer occupying position of cornea and about ready to perforate. Right eye soft—vision dim at times. Vision fingers at 5 M. Examined right eye under scopolamin. Fundus blurred. Retinoscope vertical + 5.50 Horizontal + 6.50 reverses. Accepts 6/xlv with + 4.50 S ⊃ + 0.75 C ax. 90°. Left eye enucleated under cocaine—ethly bromide. Returned July 18, fitted artificial eye. O. D. 6 xv with + 4.50 S ⊃ + 0.75 C ax. 90°. Says right eye is steadily improving.

Case 4. S. M., age 45 years. Seen Jan., 1910. Right eye had been blind for nearly twenty years as the result of an explosion. Piece of copper had entered eye—never been removed. Eye is very hard and tender. Tension + 2. No injection or other symptoms of inflammatory glaucoma. Scar on eye with coloboma of iris and opacity of lens marks the path of the missle. The other eye had been gradually failing for some time. He had entered the hospital eight months previously when enucleation of the bad eye had been advised and refused. The patient was now ready and anxious for operation which was done. Vision of left eye 6/xc. Pupil small. Tension normal. Media clear. Disc white on temporal side. Vessels pushed to nasal side with bending into a shallow cup. The appearance was by no means a typical glaucomatous cup. It looked in fact more like a physiological excavation. The left eye im-

proved following the operation under the use of eserin, for I felt that there was sufficient doubt about the condition to justify its use. Later the vision became stationary and the patient asked for his discharge which was given.

Regarding the indications for enucleation in these cases no hard and fast rules can be laid down. My experience has taught me that aside from cosmetic reasons, given a totally blind eye which is soft and tender at times, it should be removed, whether it produced any symptoms in its fellow or not. If it should, it makes the case more urgent. I hold to this rule principally because the class of people who suffer from such accidents are prone to defer seeking advice until the last minute. They are led to this course by the expense incurred, the distaste to lay off from work and by ignorance of what their condition portends. Often too they are in situations where it is impossible to obtain the aid of a surgeon in case of emergency. All these considerations therefore confirm me in the belief that a totally blind eye with a suspicious history is much better out than carried to say nothing of cosmetic considerations. There thus remain the six cases of recent penetrating injuries of the eye. One has already been reported under the head of strabismus cases, the other five will be taken up in order. Of the six recent cases, in no case was the eye lost and all recovered with varying degrees of vision. All six had cataract which was removed.

Case 2. Z. C., age 27 years. Roumanian. Seen March 19, 1906. Right eye. Hurt at 7 p. m. by being struck in eye with a piece of iron from a casting. Eye immediately became blind. Seen at office two hours later. Examination shows a penetrating wound of the globe through the cornea in upper nasal portion. The iris is torn, the anterior chamber very shallow and filled with blood. Tension minus. The eye was cleansed and giant magnet applied with no response. Atropin in substance, bichloride vaselin and an occlusive bandage completed the dressing. Patient was put in the hospital and a brisk purge ordered. After several days eye was quiet, wound closed, blood largely absorbed, anterior chamber reestablished. Lens opaque and swollen. On March 27th a linear extraction was performed and soft lens material was removed. Recovery was uneventful and under hot applications, atropin and dionin pupil was entirely clear after several weeks. Patient was a Roumanian and could

speak no English. Test letters were of no avail, but the patient could distinguish small objects without difficulty.

Case 3. O. C., age 23 years. Seen Nov. 8, 1907. Employe of Southern Railway. On Nov. 6th at 5 p. m. was struck in eye with a nail. Shock made him dizzy and faint. Experienced great pain in eye. Treated by a general practitioner for two days after which he was referred to me. Examination shows a wound of cornea now closed with iris adherent. Lens opaque and swollen. Anterior chamber reestablished. Tension +. Considerable injection present. Anterior chamber opened and soft lens material allowed to escape. Given a brisk purge. Ordered hot applications, atropin and dionin to eye. Pain and reaction gradually subsided; pupil still blocked by small quantity of capsule and lens substance. After ten days the patient was turned over to the regular railway surgeon, who informs me that the subsequent course of the case was uneventful and the residue of the lens completely absorbed. The adherent iris gradually yielded to the atropin.

Case 4. O. P., colored, age 27 years. Seen Sept. 22, 1908. Left eye. On Sept. 21st at 3:30 p. m. while drilling holes in bath tubs a drill broke and struck him in the eye. Patient continued to work and reported accident next day after having spent a sleepless night. Examination at office disclosed a penetrating wound of globe near sclero corneal junction on nasal side. Iris prolapsed. Lens opaque. Anterior chamber shallow. Tension minus. Eye cleansed—cocaine—prolapsed portion of iris was excised. Atropin, oil dressing, occlusive bandage. Mercurial purge followed by a saline. No infection resulted and the reaction was slight. After second day wound closed, pupil dilated and anterior chamber was reestablished. On fifth day soft lens material was removed and treatment continued. All lens matter ultimately absorbed with resulting improvement in vision. Scar on cornea not interfering. Patient reads 6/xv with + 12.00 S.

Case 5. W. S. H., age 42 years. Seen Nov. 4, 1908. Right eye. A fellow workman threw a nail which struck him in the eye. Eye immediately became blind. Patient suffered great pain. Was seen shortly after accident. After cleansing and cocainizing eye examination shows a scar extending nearly across the cornea above the center. Iris contracted and adherent to wound—lens disorganized and opaque. Light per-

ception and movement of hand at 1 iii M. Tension minus. Other eye O. K. Atropin in substance. Bichloride Vaselin—occlusive bandage. Mercurial purge followed by a saline. Aspirin grains ten for pain. Nov. 5th, iris still contracted, wound leaking. Bandage as before. Nov. 10th, wound closed. Iris dilated—adhesions still persist above. Hot applications, atropin, dionin for absorption. Nov. 13th, Synechia freed. Dec. 11th, Anterior chamber opened and lens material removed. Treatment as before. Jan. 15, 1909. Lens residue continues to absorb. Eye still red. Anterior chamber deep. Complains of pain. Tension normal. Patient returned to work and reported every two weeks using dionin and atropin. On June 13th, the cortical substance had entirely disappeared leaving pupil blocked by a rather dense membrane. Eye quiet—no pain. Membrane divided with a Ziegler knife needle without incident. June 28th, examined—fundus visible—normal. Sees 6/xv with + 9.00 S⊃ + 3.00 ax. 180°. With + 3.00 added he reads large print without difficulty.

Case 6. F. Z., age 18 years. Seen Dec. 16, 1909. Left eye. At 6:30 p. m., while nailing a crate the nail glanced and struck him in eye. Immediately suffered loss of vision and great pain. Seen at office shortly afterward, when examination showed loss of vision except for form of large objects. Cannot count fingers. Has a penetrating wound through cornea, upper nasal quadrant. Lens opaque. Iris discolored. Corneal wound irregular and gaping. Portion of capsule of lens and iris engaged in edges. Tension minus. Cleansed—atropin in substance, bichlorid vaselin, bandage. Mercurial purge and saline—rest in bed. Dec. 18th, Anterior chamber reestablished —wound closed. Pupil dilated. Capsule of iris attached to wound and two small synechia above of lens to iris. Under atropin, dionin and hot applications the condition rapidly improved. On Jan. 23rd, a linear incision evacuated nearly all the soft lens matter. Slight reaction. Scar much smaller. Patient is still under observation and has a very thin membrane over pupil which is free below, being attached above to the old adhesions. It will, I believe, ultimately all absorb without further operative interference. The interesting features about these cases are first, not a single case of infection occurred, notwithstanding the fact that the men were at work in the foundry or packing room and consequently dirty at the time

and one case was not seen till twenty-four hours after the accident. The explanation of this is doubtless the fact that the protective influence of the iris is exerted by washing into the wound and closing it, or the irregular edges of the wound prevent the ingress of external substances. The difference in the size of the scars after a few months is also a fact worthy of notice. It is often surprising how a formidable looking scar will contract to a faint white line.

The absorbing of the lens in case five was a surprise to me considering the man's age, forty-two years. This man, however, had exemplary habits and was young for his years.

In conclusion it seems justified to say that these cases, while serious, if seen early and kept under control, offer a very favorable chance for recovery with some vision. The eye is of course aphakic and cannot be used with the other eye. It is my custom to explain to the man, however, and give him a glass for that eye, to use at times so as to maintain the vision in case of accident to the other eye, it being my observation that vision usually fails in such eyes if left alone.

## *Abstracts From Recent Ophthalmic Literature*

### ANOMALIES.

Arteria Hyaloidea Persistens.—Marx, E., Amsterdam (*Tydschr. v. Gen.*, April 18, 1908), observed in the Leiden policlinic 3 cases of Art. Hyal. pers., two of which were in normal eyes with a visus, one as accidental findings. In the one eye it was visible as a pale yellow very movable thread, half as thick as a vessel in the disc, which originates from the nasal side of the disc without any connection with the art. centr. It addheres at the nasal-upper part at the posterior surface of the lens, with little thickening. The second case was a dark vessel, somewhat broader than the central vein at its origin, lying in the center of the disc at the common origin of artery and vein, 2-3 mm. deeper than the margin of the disc; its anterior end lies 1 mm. before the disc. It was not near so movable as the first one. Blood-circulation in it could not be observed.

The third case was in the right eye of a 12-year-old girl, whose left eye had parenchymatous keratitis with other signs of hereditary syphilis. After clearing up of the cornea the disc looked greyish, ill de limited with thin vessels with many pigmented foci in the fundus. The vision of the right eye is zero; the eye is turned inward, a small macula on the cornea and a small pigmented spot on the anterior surface of the lens; media clear. Nothing of a papilla is visible; at its place is a yellowish-white spot with some very thin tortuous streaks, perhaps, but not probable, rudimentary vessels. Vessels or indication of vessels in the rest of the fundus entirely absent. From this white spot a string goes in the temporal part of the vitreous, ½ mm. thick, of brownish-yellow color. This string, becoming broader, adheres behind a wringing prominence of the ciliary body. This prominence goes over imperceptibly in the niveau of the chorioid and shows upward a large and farther different atrophic small spots and light streaks. The fundus shows restes of a chorio-retinitis, chiefly in the surrounding of the white spot: small black foci and larger atrophic patches surrounded by pigment.

The pigmented foci and atrophic patches in the choroid remind the most as restes of an inflammation. The string in the vitreous cannot be the result of a retinitis proliferans, as the color is not tendinous-white and no restes of hemorrhage can be found and the patient's age is below 20. No reason also exists to suppose that the string represents a totally detached retina: tension is normal, anterior chamber is of normal depth, no opacities in the vitreous, no cause is known of a total detachment along the entire ora serrata. Against an intrauterin detachment speaks the normal development of the eye. The cause of the total absence of the vessels must be looked for in intra-uterin life. An inflammation in the optic nerve with thrombosis of the central artery could be supposed. The inflammation could have gone through the papilla into the canalis Cloqueti, which found at its end a way through the vitreous towards the region behind the ciliary body. The absence of the retinal vessels could be thus explained, but for the regular development of the lens, as the art. hyaloidea would be absent, we have to suppose that the nutrition of the developing lens should have happened through communications between the iris vessels and those of the membr. vasculosa lentis. On an inflammation during embryonal life must be accepted chiefly along the already developed retinal vessels and those of the vitreous; the inflammatory products around the retinal vessels and these vessels themselves could have been resorbed along the lymph-vessels and the numerous blood-vessels of the choroid, while the inflammatory products along the art. hyal., farther removed, would have remained behind to sosme extent. The difficulty is in the relatively little inflammatory restes in the fundus and that the probable papilla should have such a distinct round form, where just in its neighborhood so much inflammation should have happened. Foetal disease can, according to Leber, retard the development of a part or of the entire eye. Here it has been hereditary lues. E. E. B.

Arteria Hyaloidea Persistens. DeVeris, W. M., Amsterdam (*Tydschr. v. Gen.*, May 2, 1908), found cataracta polaris post. in the right eye of a 5-years-old boy, while the left eye showed the following: disc oval with sharp black pigment border; from it goes a thick grey string with vessels on it forward and somewhat temporalward, which seems to broaden

not far from the lens and adheres below the lens-equator somewhat to the lateral side. Nothing visible at the posterior surface of the lens. From out the string a vessel goes, which goes downward over the disc margin and is quickly lost in the retina. Another vessel comes from below the string, which branches in the retina. No other retinal vessels visible; the chorioidal vessels shine through distinctly. The anterior part of the string is well visible with the concave mirror and incident light; it disappears below behind the lens equator; it contains three vessels. Fingers are counted at 1.5 meter. Colors are not recognized; hand motions in all directions; nasal-upward a defect seems to be present agreeing with the projection of the string down and temporalward. Nystagmus is present.

DeVries thinks it to be a persistent hyaloid artery surrounded with a mantle of connective tissue. The concealed hyal. art. would give the two branches for the retina. The string was at its beginning in the disc as broad as the disc diameter, about 1.5 mm. E. E. B.

Prognosis of Retinal Hemorrhages from Arterio-Sclerosis.—Straub, M., Amsterdam (*Tydschr. v. Gen.*, June 6, 1908), observed about 6 years ago 15 persons with retinal hemorrhages and arteriosclerosis, which must have occurred chiefly with thrombosis of the central vein, according to the investigations of Harms and Coats. They belonged to the better social class, whose general condition was good, their urine without albumen or sugar. The retina was covered with hemorrhages and the arteries showed changes. The age is between 32 and 77; the most are found between 45 and 65. S. considers the 2 youngest (32 and 40) to belong to a separate group; the historia morbi of the 32 years old one points in that direction. The 40 years old one was a case as the others. However, on account of his policlinic experience he likes to put the beginning of the critical period rather at the age of 50 than at 45. He thinks it also probable, that the 4 oldest cases (68, 70, 71, 77) belong to another category, which means that they have another cause for their arteriosclerosis than the chief group. These 4 old patients are still living.

Among the 15 cases 3 are women. Three eyes had to be enucleated for glaucoma, the other eye also being sick. He remembers only one case of complete blindness through this condition

among his large policlinic material. Among the 15 cases 5 times both eyes were affected. The 2 oldest and the 2 youngest had the right eye only affected; the greater predominance of the left eye is seen here also. Six patients had died from a cerebral hemorrhagia; 5 of the 9 in the most predetermined age. Only 3 of these 9 still live; 2 died after 5 years, 1 after 3 years, 2 after 2 years and 1 after 3 days. This last one was a 53-years-old man with habitus apoplecticus, or arterial hypertension, who had hadd positive scotomata before the left eye and rather was an exception with the slight changes in fundo: small hemorrhages next to the fovea centr. and the art. macularis sup. with small white spots on the arterial wall.

As shown, the prognosis for older people seems to be less serious than for middle-aged people. S. has not included all cases of retinal hemorrhages, only cases with hemorrhages over the entire retina or over a distinct vascular region. In very old people often hemorrhages in the region of the fovea centr. are found. The chief value of this small statistic is in the prognosis, which is very unfavorable for middle-aged persons, far less dangerous for the younger and the older patients. He relates the 2 following cases:

1. Man, age 58, comes with anophthalmus of the left side for secondary glaucoma. The retina in the right eye was covered with hemorrhages. Rest, regular life and moderation in all things with pilocarpin drops was ordered. More than a year the hemorrhages remained, then they began to decrease and after 2 years the retina was free. Six years later vision after correction 1 ii. The same small defect downward in the visual field as at first. At the age of 61 a slight apoplexia, from which he considers himself entirely recovered.

2. The man had his left eye removed for secondary glaucoma at the age of 50. Two years later an attack of acute glaucoma in the right eye, for which an iridectomia, which left the eye healthy for 4 years. Then appeared the picture of thrombosis vena centr. ret. This lasted 4 months, after which they began to disappear, so that they nearly had disappeared a year after the beginning. The retinal arteries, which had been invisible on account of the swelling, appear now as sclerotic white streaks. The visual field is normal, also for colors. The original vision had decreased from 1 to 1 x. E. E. B.

An Unusual Form of Teratoma Orbital (Foetus in Orbital Orbitopagus Para). - Mizuo, T., Osaka, Japan (*Arch. f. Aug.* LXV. 4, March, 1910). Among the oft-occurring humors of the orbit the dermoid is rare, the teratomata still rarer. True teratoma is described by Schwalke and v. Hippel and according to their definitions only five or six cases occur in literature. The best review of the subject has been given by v. Hippel. Amongst others he describes a case of Ahlfeeds in which from the orbit of a child there protruded part of a buttock and a left leg. Comparing different cases one can form the following clinical and anatomical picture.

The tumor is commonly at birth of considerable size, grows rapidly like a carcinoma or sarcoma and causes great exophthalmus. The child dies usually within a few weeks. Eyeball and optic are ordinarily normal. They never have any connection with the origin of the tumor. The histological examination shows the most various structures. The true teratoma is always made up of histological elements from all three embryological, germinal, layers.

v. Hippel says "in no case do we find development of complete organs." I wish to describe a case unlike all earlier described teratomata where some true organs were represented, which shows many organs and parts of the body. It appears to me proper, therefore, to speak of my tumor as a "teratoid foetus" of the orbit.

*Description of Case.* A 54-day-old boy from Yamato, Japan, was brought to my clinic on the 26th of May, 1906. History showed nothing of special importance. Pregnancy and birth normal , time 10 months. The mother had safely borne 11 normal children. At birth there was seen in the palpebral fissure of the left eye a red swelling of the conjunctiva. The swelling rapidly increased and the swollen tissue extended out of the palpebral fissure 3 cm. On the under lid of the same eye there appeared a swelling which in half an hour's time had grown to the size of a small egg. Simultaneously there appeared a swelling of the upper lid which seemed to be due to pressure from below. On the second day the child was taken to a doctor who cut off the protruding conjunctival swelling. He also made a small incision through the lower lid near the swelling from which a somewhat cloudy fluid flowed. As the swell-

ing reappeared, the doctor after waiting 40 days, made another puncture. From the puncture came a brown purulent material. The opening did not close again, and after 10 days more or 50 days after the birth of the child a small tumor made its appearance in the wound. It was a small foetal left foot. The opening widened as the mass increased in size. The tumor now developed very fast, was every day larger so that in 20 days the child was brought to my clinic.

S. P. Stature and nutrition normal. No other abnormality on head or body. Right eye normal. Under the left eye a tumor the size of a small fist. It looked like a small foetus and covered with fine down and with an umbilical-like pedicle. This ran through the wound and was attached in the depths. The palpebral fissure of the left eye was about 1 cm. longer than that of the right eye. The left eyeball was pushed somewhat upward and forward, and the excursion downward was limited. Reaction to light slow, the disc slightly pale, otherwise the eye normal. 1 cm. under the edge of the left lower lid was seen a crater like opening about 3 cm. in diameter. The inner surface was covered with granulation tissue. It communicated with a large cavity in the orbit, whose limits one could palpate plainly with the fingers. The lower wall on floor of the orbit seemed to be shoved downward and outward, and the whole orbit appeared roomy. The depth of the cavity was so filled by the pedicle of the tumor that one could not define its limits exactly. The tumor itself had quite the form of a foetus. From the top of the head to the buttox it measured 70 mm., the anterior diameter was 80 mm. with the exception of the head the skin was of a slight cherry red color, covered by a fine down. In the head region was fairly long hair. The sole of the foot had the usual furrowing. The head was without skin covering and brainlike substance was exposed. Below the head I found what appeared to be rudimentary arms. From the belly region came the beforementioned umbilital-cord like pedicle. At the lower end of the trunk between the legs was a penis-like structure, both feet were well developed, about 23 mm. long, had fine toes, each with toe nails well defined.

The child was put in the hospital but did not flourish, became feverish and it was interesting to note the coincident rise in temperature of the tumor. This became larger rapidly, but the weight pulling on its pedicle began to interfere with its nutrition.

I operated on the child without narcosis. There was slight pain. After removal of the tumor the child immediately improved. After 5 days the ligature fell spontaneously from the cord. The child made an uneventful recovery, the wound closing in a few weeks.

A thin section was taken from the tumor and studied microscopically. The histiological corresponded with the gross findings and showed many more organs and structures.

Without doubt my case was one of highly developed teratoma but more, it was also a form of diplogenesis in which the child was the autosite and the tumor the parasite. Under atypical diplogenesis in which the parasite fastens itself on the head of the autosite there are four groups:

1. Epigratus.
2. Craniopagus parasiticus.
3. Janus parasiticus.
4. Dicephalus parasiticus.

My case at once falls under the first class, but does not exactly fit there.

Under Epigratus is included all forms where the parasite is attached to the hard palate or in the neighborhood of the hard palate in the mouth of the autosite. Schwalbe placed cases where the parasite was attached in the orbit under the class of "Epigratus-related forms". Merchant called such cases "Prosapapagen", but the Greek root meaning "face", that is not the correct form for my case. I call it "Orbitopagus parasiticus".

It is interesting to compare the grades of orbital teratomata with the different kinds of Epigratus.

Schwalbe gives four groups of Epigratus in his work on malformations. (1) To the palate or its immediate vicinity is attached the pedicle of a more or less developed foetus. (2) From the mouth hangs various parts of the body of a second individual. (3)Out of the mouth hangs an unformed mass which the microscope shows to be a teratoma. (4) From the palate or the mouth comes a tumor mass which the microscope shows to be a mild tumor composed of various tissues.

We can thus from these groups form a chain representing all the stages from the mixed tumor to the diplogenetic structure. Just as there have been found cases as cited above, illustrations of the stages of such tumors of the mouth, so it is

possible to arrange the cases of teratomata of the orbit which have been reported. Thus can be represented all the stages from simple mixed tumor to diplogenesis. (1) Foetus fastened by its pedicle in the orbit (my case). (2) Parts of the body of a foetus hanging from the orbit. (3) Formless mass hanging from the orbit, shown histiologically to be derived from all three premature layers. (4) A tumor mass in the orbit which is shown microscopically to be composed of different parts, cysts, bones, etc., having the characteristics of a mixed tumor and traceable to two primitive embryonic layers.

The unbroken chain which can thus be formed between orbitopagus parasiticus and orbital tumor as in Epigratus is very interesting in its relation to teratomata.

The modified Marchand theory best explains the phenomena. v. Hippel gives it thus: That in the beginning of the development of the embryo one blastomere comes to lie on the faster growing organism and remains dormant to develop at a later time, or begins at once in the early embryonic life to develop. Such cases where they are not far removed by cleavage from the original ovum are capable of developing complete organisms. The greater the number of divisions of the original cell before such a blastomere is segregated, the less potent it is in development. So we have such cells developing complete organisms or only parts thereof, or giving rise to more embryonic layers, accordingly as it is near the first cleavage or distant from it.

My case evidently developed from an early segregated blastomere and the theory explains our chain of various stages of orbital tumors. E. C. S.

## BACTERIOLOGY.

Bacteriological Examination of the Conjunctival Sac Previous to Cataract Extraction. -Gradle, H. S. Prague (*Arch. Ophthal.*, July, 1910, XXXIX, 337). In order to test the accuracy of Axenfeld's statement that in the examination of the conjunctival sac, previous to cataract extraction, for the presence of bacteria, such examination could be made more easily by the examination of smears than by cultural methods. Gradle made both smears and cultural examinations in a series of 50 cases. The eyes were then bandaged for from 2 to 12 hours and re-examined. In the 50 eyes examined,

streptococci were found in 29 cases by cultural methods. In 16 of these 29 cases streptococci were found in smears, while in 2 of the 21 culturally sterile cases streptococci were found by smear examination where they failed to show by cultural methods. In 9 of the 50 cases other bacteria were found in culture while in only 4 cases were these bacteria found in smears. In 32 cases a bandage was applied but in only 3 cases were bacteria found after bandage, where previous search had not revealed them.

The author concludes that the examination of the conjunctival sac for streptococci by smears is not trustworthy and that the application of a bandage does not simplify that method of examination. W. R. M.

Endogenous Infection of the Eye by Cocci. (Metastases After Furuncles. Metastases in Epidemic Meningitis.) Lutz, Anton. (*From the Eyeclinic of Prof. O. Haab in the University of Zurich. Klin. Mon. f. Aug.*, XLVIII, I, p. 636), had the opportunity to examine 3 cases bacteriologically and reports them on account of the rare occurrence of such conditions and their peculiar clinical aspect.

The first was a case of purulent iridochorioditis following a furuncle of the neck in a man, aged 63, suffering from severe diabetes. Panophthalmitis developed with spontaneous perforation ending in phthisis. Micrococcus pyogenes aureus was raised in pure cultures from the pus, but was not found in the blood.

Case 2. A boy, aged 10, who for months suffered from furuncles of the skin, especially of the legs, complained, a fortnight ago, of pain in left eye with photophobia and redness. Within in the last three days an abscess developed on the inferior temporal quadrant of the sclera, which projected into the interior as a dark tumor, leaving the retina as the unaltered bloodvessels showed. V. was reduced to uncertain perception of light. In the evening of the day of admission, the abscess burst and a large quantity of pus came out, which contained micrococcus pyogenes aureus. The examination of the blood was negative. The affection healed with V. 6/vi.

Case 3. A purulent irido-choroiditis developed in the right eye of a man on the second day of epidemic cerebro-spinal

meningitis, with panophthalmitis terminating into phthisis. On the 4th and 29th day the anterior chamber was punctured and micrococcus meningitidis found in a culture. A ring-shaped opacity of the cornea developed. C. Z.

Late and Post Operative Eye Infections.—Ryerson, G. S., Toronto (*Canada Lancet*, May, 1910). Under these are comprised conditions where symptoms first appear on the third or fourth day following operation. There are three types of infection; those which are attended by opening of the wound, a second type where there is no opening of the wound and a third type where a fistula of the wound is present.

Present contribution deals only with the second class. The clinical evolution of these cases is iridocyclitis of a benign nature, iridocyclitis of a severe form which may give rise to sympathetic ophthalmia, and the late appearance of interocular hemorrhages. The etiology of these forms of iridocyclitis is still hypothetical. Morax is forced to admit the conjunctival origin of infection but states that the specific form of infection has not as yet been established. He holds the same view regarding iridocyclitis which gives rise to sympathetic ophthalmia. The author states as his opinion that in an operated patient it is possible that a localization of infection is exceptional and that more often an exogenous post-operative infection is the cause of the symptoms." It does not appear that in the chronic experimental infections the traumatism has a manifest localising action. F. T.

A Case of Syphilis Insontium, and a Contribution to the Duration of Life of Spirochaete Pallida. Scheuer, Oscar, Wien, (*Deutsche Med. Wochenschrift*, 1910, No. 10, p. 458), found that spirochaetae remain infectious in moist media for over 2 hours, which explains the relative frequency of extragenital infections. On the other hand, the experience that spirochaetae are killed by drying the material in which they occur, furnishes certain directions for hygiene. C. Z.

## CATARACT.

Extraction of Cataract in the Capsule. Smith, Major H., Jullundur Punjab. (*Ophthalmic Record*, Feb., 1910).

"The term 'Extraction in the Capsule', or 'in der Kapel', is

the term used by the Pagenstechers which, in their case was a veritable extraction by a spoon.

"Extraction in the Capsule is the term I have used so far and it distinctly implies the complete as distinguished from the partial or capsulotomy operation.

"Attempts have been made since the days of Daviel to remove the lens entire but all prior to the work of the Pagenstechers in the decades 1860, 1870 and 1880 have been relegated to a position hardly even historical.

"The Pagenstechers operation implied the introduction of a spoon (the mouth of which was about the diameter of the lens) into the vitreous behind the lens and the lifting out of the lens in this spoon. I think I am not far wrong in saying that this procedure is also relegated to a historical position on account of the almost, if not universal occurrence of escape of vitreous as associated with it and on account of the introduction of this large spoon into the vitreous which would in my opinion enormously increase the percentage of cases which would become septic.

"The first man, in my opinion, to extract the lens in its capsule, by manupulation applied to the exterior of the globe as a systematic operation, was Malronez. His operation consisted of a lower section without iridectomy. The speculum was retained in position. The scoop or strabismus hook was applied at the upper border of the corner till the edge of the lens presented itself in the wound, then counter pressure was applied by a curette below the incision as when the lens was nearly half out of the wound by pressing on the globe with the thumb on the orbicularis muscle. There is much greater liability to escape of vitreous then with an upper section." Major Smith has performed 20,000 cataract extractions in the capsule and 3,000 operations with capsulotomy and during the performance of a number of the latter operations with expulsion of the lens and with considerable loss of vitreous with the final result good and with no complications.

The author states: "I am now of opinion that the combination of lens capsule in the wound and the liquefying debris of lens matter in the aqueous chamber are of the nature of a chemical irritant, causing iritis and irido cyclitis, and also interfere with the normal healing of the wound, and that these factors taken together account for the fact that in India the

capsulotomy operation is followed by an incomparably greater mortality of eyes from all causes than is the case with the intracapsular operation." Major Smith emphasizes the great importance of an able assistant.

"I can now confidently say that by excluding complicated cases I could extract cataract in the capsule with escape of vitreous in not more than two (2) per cent. on large figures, and taking complicated and uncomplicated with escape of vitreous not exceeding 5 per cent. of the cases."

The author states: "I do not claim to have been the first to extract cataract in capsule as a systematic operator. I never did claim such. I do claim that my technique was developed independently of any one."

All cataracts can be extracted in the capsule except in children and juveniles.

Atropine is not used.

The conjunctival sac is douched with one in two thousand corrosive sublimate solution, but the author sees no reason why normal salt solution would not do equally well, as its effects seem to me to be merely mechanical.

The incision is a sclero-corneal one. "If it is the length of a new Graefe's knife and in good order, the incision should be completed with this thrust. If not completed a single draw back should complete it without any sawing."

The incision is finished in the cornea.

Major Smith advises a beginner to do an iridectomy.

"These cases are not inspected before the eighth day unless some special indication presents."

"The incision should be large and most of the failures in the novice is due to non-observance of this rule."

"In the case of an immature lens or of a hard cataract, with a spatula in the operator's left hand ready for use if required, he proceeds to press back with the point of a strabismus hook towards the optic nerve, the point of the hook being placed over the lower third of the lens, the pressure is steady and the point of the hook should not be moved until the upper edge of the lens tilts forward and is thus seen to be dislocated, having been made to swing on its transverse axis. The moment the lens at the wound is seen to be dislocated, the pressure through the point of the hook is gradually turned more and more towards the wound, pressure being maintained all the time so

as to keep the lens up to the sclerotic margin of the wound, the pressure with the hook becoming gradually lighter and lighter and the hook gradually sliding after the lens until the cornea is folded beneath it, at this stage it is delivered. In a low tension eye the beginner should follow up the lens with the spatula in addition to the hooks, as with it he can maintain a sufficient tension in the eye and thus allow his right hand instrument to follow up the lens more lightly."

"In the case of intumescent lenses and Morgagnian cataracts pressure is made on the lower border of the lens and traction is made from this point in the direction of the patient's feet by which almost invariably make these lenses to dislocate below first and to turn a half somersault. This pressure and traction are over the zonule. As soon as the lens turns up into the wound, showing that it is freely dislocated below, the operator should cease to make traction towards the patient's feet and make direct pressure first backward, then backwards and upwards, and finally more and more towards the wound, folding the cornea beneath the lens until it falls over on the outside of the cornea."

The hypermature cataract is the most difficult to dislocate. Major Smith removes this type of cataract by using the spatula which he drops behind the lens the instant the edge of it is seen at the wound keeping the back of the spatula throughout against the sclerotic margin of the wound. The lens is pressed against the spatula from the outside and thus made to slide up along the inclined plane of the spatula.

Careful repostion of the iris is very important and prevents complications.

Vitreous should be snipped off with scissors if it escapes and not left in the wound to act as a drain.

Major Smith is opposed to the various devices used for dislocating the lens with an instrument inserted into the interior of the eye. G. I. H.

Cataract Extraction in the Capsule—The Jullundur Patient. Vail, Derrick T., Cincinnati, Ohio. (*Ophthalmic Record*, Feb., 1910.)

The author states that the natives of India are more prone to cataract than our own people due to the tropical sun and heat, insufficient food, etc.

Their race (Aryan) and diet do not seem to predispose to cataract.

Cataract develops on an average of ten years earlier than among us.

Complicated cataract operations are more frequent in India than here. Trachoma is by far the commonest complication and is so universally prevalent that it is not rated a complication. Fully 80 per cent of the patients have this disease, according to Smith, chronic non-inflammatory glaucoma is present in 10 per cent of all new patients.

Another rather common complication is the couched or dislocated lens, the result of the work of the professional lens couchers.

The simple mature cataract is the commonest kind that prevails in India but the hypermature cataract is rather common.

The Indian patient is better behaved while being operated upon than our patients as long as he is not instructed what to do, but they are much worse when told how to look.

The patients behave fairly well after the operation.

They seem to be less prone to post-operative complications. The author cites only two cases of panophthalmitis following 1,200 extractions and the almost total absence of iritic and ciliary inflammation.

These people require less care after the operation than our patients. A large majority of the patients return sooner or later for glasses.

Captain Lister, I. M. S., reports that after doing a number of cases (by retinoscope) in which there had been escape of vitreous at the time of operation and from one to seven years previous to his examination and the astigmatism was scarcely ever I. D.

Vail states that Smith is truly a master operator, his vast experience has made him so; but others can be masters too.

The author believes that the Smith Operation is the operation of the future among the best surgeons of the world.

Smith makes the following statement: "The mental depression (among immature cases who are told to wait for months until their cataracts become ripe) is allied to that incident to the prospects of confinement in a dark cell without labor—a form of judicial punishment admissible in no civilized country." G. I. H.

Malronez Operation.—Chaud Habl. Amritsur, Punjab (*Ophthalmic Record,* Feb., 1910).

The author was Colonel Malronez's assistant and has performed this operation on 1,500 cataracts.

"The incision which is an upper one, is made with a single sweep, finishing in the cornea near its periphery; no iridectomy is done. The patient is now asked to look towards his feet and pressure is made on the sclerotic above the wound with a curette; the lens is thus dislocated at the wound. As soon as the edge of the lens has made its appearance in the wound through the pupil, the speculum is removed, then he applies pressure on the lower part of the cornea with a curette and with another curette in another hand he makes counter pressure above the wound till the lens comes out." G. I. H.

Lt.-Col. Smith's Operations in Bombay. (*Indian Medical Gazette,* May, 1910). Major Kilkelly, Ophthalmic Surgeon, Bombay, relates the final results of 23 expressions of cataract in the capsule performed in his hospital, by Major (now Lt.-Colonel) H. Smith, of Jullundur, during his Bombay Medical Congress in February, 1909. The vision obtained was:

1 case = 6/xv.
2 " = 6/xx.
7 " = 6/xxx.
3 " = 6/xl.
4 " = 6/lx.
5 " = fingers ten to eighteen feet.
1 " = moving bodies.

Accidents during operation:

Capsule ruptured .....5
Vitreous escape .....2

Complications:

Incarceration of Iris in lips of wound....5
Capsule tag in wound.....4
Vitreous opacities .....9
Iritis .....7

He says these results of these operations, performed by Col. Smith himself, confirm him in the opinion he expressed at the Congress, when he stated that he had performed some 500 extractions in the capsule, but had given up the operation as

a routine procedure, being convinced that the best interests of his patient were not conserved if it be done except in exceptional cases. He goes on, "It is clearly shown by these cases that accidents occur and a high percentage of bad results follows intracapsular extractions, even when this operation is performed by Lt.-Colonel Smith himself, and for my part I now feel that the average patient is exposed to an altogether unnecessary danger by the operation."

He thinks Col. Smith's method of replacing the iris pillars by a strabismus hook end is responsible for the large proportion of cases of prolapse of iris after the iris has been forced into the corners of the wound. He thinks it inconceivable how such a round and comparitively large instrument as a strabismus hook could reach in extreme angles of the wound. As the eye is in nearly every instance strongly rotated upward it is also difficult for the operator to see what the point of the strabismus hook is doing. To some of us onlookers it seemed to be merely stirring up the vitreous. In some of the cases at least it seemed that the pressure necessary was excessive, heavy lenses shelled out with the utmost ease, in others it was only the undoubted determination and persistance of the operator that brought about the desired result or caused a ruptured capsule or escape of vitreous.

The writer mentions how impossible it is for anyone doing the work Col. Smith does (50 cataracts a day often, with much other work as well) to find time to examine the cases himself and how he must trust mainly to subordinates in the matter of notes and statistics. F. P. M.

Six Hundred Extractions of Senile Cataract with Peripheral Iridectomy. Wittmer, H., and Nagans, B., (From the eye clinic of Prof. C. Hess in the University of Würzburg, *Archiv für Augenheilkunde*, 66, p. 25). As the method of extraction of Prof. Hess deviates in various points from others, a brief review of it is given.

The indication for operation merely depends on the impairment of vision, without regard to the maturity of the cataract. If the patient is disabled from his work by the cataract, the operation is proposed to him, as it is certain, that also still fairly clear lenses can by proper methods be completely removed without necessitating an operation for secondary cataract.

The evening before operation the lashes are trimmed and the lids and surroundings carefully cleansed with soap, benzin and sublimate, the conjunctival sac thoroughly irrigated with sublimate 1:10000 and Fuchs' mask applied. This is repeated 1 or 2 hours before operation, and immediately before operation the conjunctival sac is thoroughly irrigated with physiologic salt solution. Affections of the conjunctiva, lacrimal sac, or surroundings of the eye, are strict contraindications against extraction. Through the lid retractors of Hess the skin, outer angle, especially the border and lashes, are kept off from the field of operation.

The first act consists in a scleral flap section of 1/3 or more of the corneal circumference and formation of a small conjunctival flap. After opening the capsule with Foerster's forceps the lens is delivered with an instrument devised by Hess, concave at the lower end, which by pressure on the lower margin of the cornea backwards and upwards, expresses the lens through the pupil, maximally dilated by atropin-cocain. The reposition of an eventual prolapse of iris is made by a shovel, 4mm. wide, which is introduced for the removal of cortical matter, being provided with a ridge so that its load cannot fall off. A Daviel's spoon in assisting in this manoeuvre, is given preference to massage with the lower lid. The last act consists in a very small peripheral iridectomy. After readjusting the iris and the conjunctival flap with a Daviel's spoon the eye is covered with an aluminium capsule with central opening, fastened with adhesive plaster. This is free from the objectionable features of an occlusive bandage: pressure on the eye, stagnation of secretion, disturbance of the flow of tears by excluding the winking. The other eye is also closed for 24 hours. The patient is brought to bed on the sheet on which he rested during operation. Seven hours after operation the eye is briefly but carefully inspected. Under normal conditions the patient may leave the bed after 24 hours. Generally on the 4th day the capsule is replaced by Fuchs' mask and two weeks after the operation the patient is discharged.

The optical and cosmetic results are very good by the preservation of a well functionating round pupil with free communication between anterior and posterior chambers. The hidden position of the coloboma behind the limbus and upper lid, and

the small amount of post-operative corneal astigmatism. Prolapse of iris is very rare. If it does occur it is placed on the afternoon of the day of operation. Thus the extraction with peripheral iridectomy has all advantages without the disadvantages of extraction with total iridectomy.

For the extraction of secondary cataract the sclera is incised with a lance-shaped knife which makes a hole in the capsule, through which a capsular forceps is introduced behind the secondary cataract and this extracted. In some cases it is pulled out with the sharp hook. If this does not succeed, the original fissure is enlarged with de Wecker's ciseaux. Only in the thinnest secondary cataracts discission is attempted. In general V. — 0.3 is determining for a secondary operation. The visual results, tested with the new international types 14 days after operation are arranged in tabular form. Excluding the complicated cases, out of 546, 153 (28.02%) had V. = 1.0 to 0.6, 218 (39.95%) 0.5 to 0.3; 174 (31.871%) 0.2 to 0.1; 1 (0.18%) — 0.1. In 43 cases operation for secondary cataract was necessary.

There were only 4 cases of iris prolapse. Infection or glaucoma never followed the operation. In cataract of glaucomatous eyes the extraction with peripheral iridectomy answers the same purpose as total iridectomy and by preservation of the sphincter pupillae admits of further medicamentous applications. C. Z.

The Beginning of Senile Cataract in the Lower Part of the Lens.—Handmann (*Wien. Klin. Woch.*, April 2, 1910).

In examining 845 cases of incipient cataract, the author found that in a majority of the cases, the process began to form in the lower part of the lens, on the nasal side. This, in his opinion, proves that this type of cataract is produced by a disturbance of nutrition, which is more noticeable in the lower part of the bulbus than in its upper part.

1. The pathological products sink by their own gravity, and injure the lens in its lower part more readily than in its upper part. 2. The rays of light act more intensely upon the lower part of the lens, than upon the upper part, which is protected by the upper lid. J. G.

Management of Patient After Cataract Operation.. Kraus, J. (*Wien. Medi. Woch.,* April 2, 1910).

The author operates on his cases while they are in bed, but permits them to get up on the same day or the day following, at the latest. Muscular exertion on the part of the patient must be avoided.

This form of after-treatment is without danger in well-selected cases. J. G.

Cataract Absorption.—MacWhinnie, A. M., Seattle, Wash., (*Opthalmic Record,* May, 1910). The author gives a resume of 21 cases reported by Verderau in which 2½ per cent. potassium iodide is used hypodermatically, a marked improvement being reported in every case treated, while in one case there was complete disappearance of the lenticular opacity. Other experimenters, as Pons y Marquis Palama reports a failure in three cases using this method. Angieras reports two cases in which there is a complete disappearance of the lens, following an inflammation of the iris.

He reports one case of his own in which there was a complete disappearance of the lens striae following 20 intra muscular injections of benzoate of mercury 1 cgm. daily.

Cuts are given in which the clearing up of the lenticular striae are shown. He believes that, barring traumatic cataract, sanitary surroundings and nutritional value are potent factors in the formation of lenticular opacity. The case is quoted to show that a lenticular opacity can be absorbed in its early stages in some cases, this case being one of rapid and complete disappearance of all evidence of the lenticular opacity with return to normal vision. H. V. W.

Etiology of the Cataract of Glassblowers.—Schanz and Stockhausen, Dresden, (*Deutsche Med. Woch.,* 1910, No. 19, p. 918), studied the conditions under which the glassblowers work and examined spectroscopically the light emanating from the glass ovens. This light is free from rays which irritate the external parts of the eye and contains only short waved rays which chiefly act on the lens. Therefore the glassblowers do not present symptoms characteristic of electric ophthalmia nor changes similar to spring catarrh, as produced by Birch-Hirschfeld in animals by frequent exposures to electric

lamps. The iris absorbs the short waved rays, so that they affect only the unprotected portion of the lens. The alterations of the skin of the face of the glassblowers are also caused by these rays. C. Z.

The Etiology of Cataract. Stricker, Louis, Cincinnati, (*Lancet-Clinic,* June 11, 1910), calls attention to the position of the lens held up by the zonular fibers and immersed in fluids which permeate the lens fibers, the lens and fluids both being devoid of blood vessels, nerves and lymphatics. "As the nucleus increases in size and density it loses its resiliency, and no longer gives to the accommodative efforts in the same relative proportion as do the cortical lamellae. This inequality leads to the development of splits and fissures, in which the nutritive supply stagnates, thus leading to the first recognizable evidences of cataract formation. The neighboring fibers, deprived of a continuous fresh nutritive supply, undergo degenerative changes, give up some of their contents, take up some of the abnormal fluid, and thus the first cataractous changes, irreparable in their nature are set up." After considering more fully the pathology of different varieties of cataract he says, "All the varieties of cataract (except those due to congenital malformations) can be explained on a basis of chemical change, the variety of the cataract depending on the chemical constitution of the nutritive fluid, the intensity of its action and the time of life." M. D. S.

A Contribution to the Casuistics of Ringshaped Opacity of the Anterior Surface of the Lens After Contusion of the Eye.—Heschiller, J., Stuttgart, (*Klin. Mon. für Aug.*, XLVIII, April, 1910, p. 433). On the third day after a severe contusion by a stone which was thrown against the eye, with hyphema, discoloration of iris, and no reflex on ophthalmoscopic examination, H. observed a ringshaped opacity on the anterior surface of the lens. It was distinct with the plane mirror, very faint on oblique illumination. After 10 days a slight central annular opacity was still noticeable. Its seat corresponded exactly with the site of the normally sized pupil; it was circular, closed in itself, and from ½ to 1 mm. wide. Ten months later it had entirely subsided. V. 5/5. C. Z.

Cataract and Jullundur Smith.—M'Kechnie, W. E., Captain, I. M. S. Civil Surgeon, Etawah, India, formerly, for three years, at Jullundur (*Opth. Record*, February, 1910). The author in his paper on the Smith operation states: "Although recognized as an ideal operation if it could be done safely, ophthalmologists had come to regard this ideal as unattainable, and it was a pity: because no one could regard the capsulotomy operation as a complete operation: its requirement of a ripened lens, and its liabilities to after-cataract, iritis, and lens-capsule in the wound were serious defects. That surgeons should have resigned themselves to regard this incomplete operation with its much restricted applicability as their operation of choice was a measure of the hopeless failure which had hitherto attended extraction in the capsule."

"It affirms that the intracapsular operation gives better results, much better results, results so much better that the difference has become obvious to untutored peasants."

The author has performed 500 cataracts in the capsule under Major Smith.

"Provided the operator knows exactly what to do and does it, the operation is easy and simpler than the ordinary operation and can be performed time after time in case after case with a uniformity and regularity which has been likened by more than one spectator of Smith at work to 'shelling peas.'"

The author further states: "I now do extraction in the capsule in all cases with the exception of juveniles. I have no fear of escape of vitreous. I have never had a serious escape and seldom more than a few drops. My total escapes are under 6 per cent. My only real trouble is prolapse of iris. I get a prolapse of one corner of the coloboma rather frequently. But it is usually quite small and does not seem to do much harm. It draws up the pupil slightly at one side and delays healing. I do not get iritis, I have no qualms as to capsule in the wound and I know that there will be no deterioration of vision from after-cataract. I have the satisfaction of sending my patients out from hospital 8 or 9 days after the operation with brilliantly black pupils and the certainty that the vision will progressively improve." G. I. H.

Extraction of Cataract in the Capsule.—Jamieson, R., Belfast, Ireland (*Opthalmic Record,* February, 1910).

The author gives the results of his 680 operations performed under the personal supervision and instruction of Major Smith. The complications were as follows:

| | |
|---|---|
| Vitreous escapes | 35 |
| Iritis | 11 |
| Capsule left behind | 17 |
| Suppuration | 4 |
| Expulsive hemorrhage | 2 |

In most cases the amount of vitreous lost was slight, not more than a drop or two.

"The immunity from iritis is one of the great characteristics of this operation and has been noted by every surgeon who has performed it."

"Rupture of the capsule is the most serious complication that can occur in the course of the operation."

The author has seen many patients, who for various reasons have come back after periods extending up to ten years; practically all have had 6/vi, many 6/v, some even 6/iv vision.

"Against these addantages we have the more frequent escape of vitreous (especially in unskilled hands) but in this connection we must remember that if the operation is properly done, the number of escapes is but slightly more than they are in the old operation."

"The operation is not an easy one, but the difficulty lies not so much in the operation itself, as in the acquiring of proficiency in the various devices which have to be adopted to suit different conditions."

"It cannot be learned by simply watching such a man doing it or by listening to his teachings, it must be practiced under his supervision and thus learned quickly and thoroughly."

"It is no exaggeration to say that an untrained or unskillful assistant will spoil almost as many eyes as an unskilled operator."

The author concludes by saying "there is no reason why, with enough practice and good assistance, it should not be successfully performed by any one." G. I. H.

Extraction of the Lens in its Capsule.—Smith's Operation.—Birdwood, G. T., Major, M. A., M. D., Cambridge University (*Opthalmic Record,* February, 1910).

The author states: "In 1906 I performed 311 cases of extraction of the lens in its capsule and reported my experience of these cases in the Indian Medical Gazette of June, 1906. I had not seen Major Smith do the operation but I had read his description carefully and his splendid results led me to try the operation. In these 311 cases there was escape of vitreous in 35 per cent. and I came then, in 1906, to the conclusion that it was an ideal operation, but that the average operator would get an escape of vitreous in 30 per cent."

"Major Smith, in October, 1909, kindly permitted me to do some cases under his supervision and guidance. After seeing him and others do the operation as it should be done and after doing 35 cases on my return this month to Agra, I am convinced that it is the correct procedure and the operation above all others."

The result of these 35 cases was four escapes of vitreous, one rupture of the capsule; all but one have resulted in good eyes and that failure was due to retinal changes. Four had the iris caught in the angles of the wound, but this is a difficulty which will be attended to in future operations."

Major Birdwood concludes with the following statement: "In my opinion Major Smith has discovered a new technic, the steps of which combine together to form a new operation. Other operators before him have delivered the lens in its capsule but Major Smith has discovered and introduced a new method of manipulation which will stand the test of time and is likely to displace the old operation in the hands of the best eye specialists. I know that 35 cases of my own are a small number to go upon, and I would not rush into print on these alone, but I have a very large experience of the old operation and I have seen for myself the facility with which the Smith operation can be done by Major Smith and others and the splendid results which the operation gives (99 per cent. good eyes in Major Smith's hands) that I am convinced it is the operation of election for senile cataracts and by that I mean the operation which will give the majority of our patients the best and most useful eyes."

G. I. H.

The Smith Operation—Toilette and After-Treatment—Greene, D. W., Dayton, Ohio (*Ophthalmic Record*, February, 1910).

The author confines himself to the means employed after the delivery of the lens (in normal cases) to secure smaller and better located pupils, free from prolapse, incarceration or entanglements of iris.

Greene states: "I emphasized, relative to making the iridectomy as small as possible by snipping the iris from below at a right angle to the section and not cutting it parallel with it; also relative to the importance of freeing the angles and replacing and smoothing out the iris as thoroughly as possible."

These measures were put into practice in the Smith clinic, with the lids perfectly controlled by the Smith hook. "When the eyes are in this position the lips of the section will usually fall apart, the hyaloid fossa can be easily mapped out, the vitreous body will tend to recede backward, away from the section, and any reasonable amount of manipulation in making the toilette can be done with little fear of rupturing the hyaloid and losing vitreous."

"In the medical treatment the traditional Blue Pill is still much in evidence. Smith insists that the pendulum swing too far from mercury in the treatment of post-operative eye troubles and that it is the same old stand-by, in connection with leeches, on which our fathers relied." The author states, "My limited experience does not entitle me to an opinion on the subject, but I do know that in two cases where relief from pain of iritis was not secured after two days' trial of these means, prompt and lasting relief followed the use of a saline cathartic and our American favorite—sodium salicylate, given according to the plan of Gifford, of Omaha."

Greene concludes by saying, "In regard to the after-treatment, there is little to be said because little treatment is required, as a rule." G. I. H.

The Attitude of the Profession Toward the New Operation for the Extraction of Cataract in the Capsule—The So Called Smith Indian Operation. Clark, C. F., M D., Columbus, Ohio (*Opthalmic Record*, February, 1910).

The writer enjoyed a most interesting experience as the

guest of Major Smith, observing his methods and performing a large number of operations under his immediate direction.

Clark says: "Those of us who have seen this operation performed by its author in his own hospital on the hundreds of cases who apply to him for relief from blindness know positively that, whatever may be the final decision as to the advantages or disadvantages of this method as practiced in Europe and America, it is a decided success as practiced by Major Smith in India."

"It will be found that, for a more or less well defined group of cases it is, when properly executed, by far the best operation, but that there are other cases in which the old method is decidedly preferable."

"The habit of implicit reliance on old methods and established authorities is so strong with the average English surgeon that a new idea must have great hardihood if it succeeds in obtaining recognition. They display a great unwillingness to take the trouble to examine evidence without prejudice and it would seem that their opinions will prove to be of little assistance to us in our effort to estimate the value of this new method."

"Some of the German authorities seem thus far to have failed to grasp the idea involved in the new method and to insist upon confusing it with Pagenstecher's operation, which is an entirely different procedure, while others reveal the fact that they have had little experience with the method by their solicitude on account of the supposed traumatism to the eye."

"The attitude of the ophthalmic surgeons of America toward this new operation is, as might be expected. We find a great diversity of opinion as to its merits and, until quite recently, there has for some reason, been such a general misunderstanding of some of the most important details of the operation as practiced in the Juluudhar clinic, and, as a consequence, so many failures or qualified successes that it is not strange that many of our most capable and conservative ophthalmic surgeons have held aloof from it."

The author concludes with this statement: "While my Indian experience gave me a very favorable impression of the method, I am free to confess that, if I were to judge it by American reports of results, I should be inclined to hold aloof from it." G. I. H.

Smith's Operation for Cataract. Two New Instruments. Wanless, W. J., Miraj, India (*Indian Medical Gazette,* July, 1910), describes two instruments intended to assist in elevating the lid and in expressing the lens. Captain Oxley suggested a curved elevator or kind of double strabismus hook. Dr. Wanless adopted the suggestion, had the forks united on the free end, the handle made square instead of flat. It is intended to not slip in drawing the lid forward, to give a little wider exposure and to cause less pain than a blunt hook. The extractor is an attempt to obtain the advantage of a strabismus hook as to the point and heel, and to have also an instrument that can be used at once to lift the lens out of the conjunctival sac after delivery. In case of ruptured capsule Dr. Wanless uses intraocular irrigation with saline solution. F. P. M.

Lt.-Col. Smith's Operations in Bombay.—Kilkelley, Major, Ophthalmis Surgeon, Bombay (*Indian Medical Gazette,* May, 1910), relates the final results of 23 expressions of cataract in the capsule, performed in his hospital, by Major (now Lt.-Col.) H. Smith, of Jullundur, during the Bombay Medical Congress in February, 1909. The vision obtained was: 1 case, 6/xv; 2 cases, 6/xx; 7 cases, 6/xxx; 3 cases, 6/xl; 4 cases, 6/lx; 5 cases, fingers 10 to 18 feet; 1 case, moving bodies.

Accidents during operation:

| | |
|---|---|
| Capsule ruptured | 5 |
| Vitreous escape | 2 |

Complications:

| | |
|---|---|
| Incarceration of iris in lips of wound | 5 |
| Capsule tags in wound | 4 |
| Vitreous opacities | 9 |
| Iritis | 7 |

He says these results of his operation, performed by Col. Smith himself, confirm him in the opinion he expressed at the Congress, when he stated that he had performed some 500 extractions in the capsule, but had given up the operation as a routine procedure, being convinced that the best interests of the patient were not conserved if it be done except in very exceptional cases. He goes on "It is clearly shown by these cases that accidents occur and a high percentage of bad results follows intracapsular extractions, even when the operation is

performed by Lt.-Col. Smith himself, and for my part I know feel that the average patient is exposed to an altogether unnecessary danger by the operation." He thinks Col. Smith's method of replacing the iris pillars by a strabismus hook end is responsible for his large proportion of cases of prolapse of iris after the iris has been forced into the corners of the wound; he thinks it inconceivable how such a round and comparatively large instrument as a strabismus hook could reach the extreme angles of the wound. As the eye is in nearly every instance strongly rotated upward it is also difficult for the operator to see what the point of the strabismus hook is doing. "To some of us onlookers it appeared to be merely stirring up the vitreous." In some of the cases at least, it seemed that the pressure necessary was excessive. Many lenses shelled out with the utmost ease; in others it was only the undoubted determination and persistence of the operator that brought about the desired result or caused a ruptured capsule or escape of vitreous."

The cases now recorded were carefully garnered by Major Kilkelley and by Drs. Bentley and Pontius, of Seattle, and incidentally the writer mentions, how impossible it is for anyone doing the work Col. Smith does (50 cataracts a day, often with much other work as well) to find time to examine the cases himself and how he must trust mainly to subordinates in the matter of notes and statistics. F. P. M.

Extraction of Cataract in the Capsule. -Smith, Henry, Lt.-Col., I. M. S., Amritsar (*Ind. Med. Gaz.,* July, 1910).

Major Kilkelly writes in the May, 1910, number of the *Indian Medical Gazette,* with the air that his paper is the last word on this subject. He sneers at my statistics and at the statistics of men whom I have had the honor of training among others, and implies that the facts of the hospital which he supervises are reliable. A hospital which in the years 1902-3-4-5-6 shows 0.40 per cent. as the incidence of iritis in a total of 3,184 cataract operations by the capsulotomy operation! He goes on to divide up my time and to apportion me duties in a manner which shows that he knows nothing about how I do my work; but he seems to think that this is necessary as a scientific argument and hence he presses it into his service.

Suffice it to say that in my cataract seasons I do very little except cataract and iridectomies and supervise the hospital, leaving the rest of work to my staff.

It was with great reluctance that I operated on those cases in Bombay, leaving by the next train never to see them again and leaving them in charge of a Native staff, possibly in hostility to this operation. Major Kilkelly got me to operate on those cases to see how to do it. If he had for a moment led me to think that they were for publication, I would have indignantly refused to accept the conditions. As a matter of fact, I never heard of them again until I saw them published in the May number of the *Indian Medical Gazette.* I think, as an act of ordinary professional courtesy, Major Kilkelly should have consulted me before publishing those case.

As regards the operations, they were nicely done, and I have no doubt that if they had been under my staff, they would have done just as well as the cases published herewith which represent my ordinary routine experience. What happened to those cases after they left the operating table I do not know. Suffice it to say that the results are so extravagantly bad in every detail that they are not intelligible to me. I can understand an occasional case going wrong with any man, but I cannot understand a series of cases being so extravagantly bad in every particular.

The small series of cases herewith published are all the cases normal at the time of operation which I have had leaving hospital, since I received the *Indian Medical Gazette* on 16th of April, 1910, up to the 1st of June, the date on which the publishers go to press with the July number of the *Indian Medical Gazette.* They are not sufficient for a deduction, but they are sufficient to put side by side with the cases published by Major Kilkelly and from which the reader can form an opinion.

I have had too many competent visitors from India, America and elsewhere, who spent a sufficient time with me to see every detail from the patients' arrival in hospital until they left it, and who know that I conceal nothing from them, to have the slightest fear of the future of this operation. Extraction of cataract in the capsule is not the "house of cards" which Major Kilkelly thinks.

It is interesting to compare the scientific attitude of Major Kilkelley with that of a number of distinguished American

ophthalmic surgeons who did me the honor of coming half way round the world and of spending a season with me to see every detail in quantity, and on what they saw to arrive at a conclusion. Major Kilkelley knows my standing invitation to any ophthalmic surgeon to come and see and on what they see to arrive at a conclusion. Major Kilkelley did not visit me but prefers to write papers under the circumstances above detailed.

As regards the attitude of American surgeons, I quite agree with Mr. W. Arbuthnot Lane, M. S. F. R. C. S. (Practitioner, May, 1910), when he says: "Curiously enough the great bulk of the profession in England with few exceptions seems to have much difficulty in grasping the nature of the changes I have described and in accepting my explanation of their causation. I think, this is due to the fact that they are not sufficiently interested to make themselves familiar with the state of affairs at the time of operation, and imagine that because these changes have escaped their observation they cannot possibly exist."

That is not the attitude of our surgical friends in Canada and in the United States. They are in advance of us in many ways in their methods of investigation. They attack any new problem very thoroughly and do their utmost to verify every fact by personal observation, and then they determine whether there is any truth in it or not. Trouble or expense affords no obstacle to their thirst for knowledge. They are not satisfied to accept unreservedly any statement or observation, and least of all, any opinion, and are only prepared to receive it when they themselves have either seen it or are satisfied as to its accuracy. They have no respect for so-called authority, and part with the innumerable surgical creeds which continue to control us as readily as their business men "scrap" machinery the moment a better mechanism has been devised. It is this attitude of the American surgeon that is exerting such a magnificent influence on the surgery of that country, and is in my opinion, making them the most progressive surgical body in the world. Let us try and follow in their footsteps and remember that the mere denial of facts that are capable of the most complete demonstration is neither the wisest nor the most scientific method of disputing their accuracy.

My method of persuading men is not by a paper warfare—

I prefer men to come and see every detail and to form their opinion on what they see.

Compare Major Kilkelly's attitude with that of the broad-minded Americans who, after a few of their number had returned from me had a discussion, published in the *Ohio State Medical Journal,* of 15th April, 1910. It it sufficient to quote the remarks at that meeting of Dr. Louis Stricker, the distinguished author of The Crystalline Lens System, than whom there is probably no more distinguished authority on cataract:

"I am sure this subject is full of interest to every body. It is holding the stage all over the United States and indeed not only in the United States, but all over the world. I had the pleasure, through the kindness of Dr. Ayres, of reading all the papers that were read in April before the International Medical Congress, which met at Naples, during that month of this year. One Dr. Valude, of Paris, condemned this operation in the most violent terms. He said he had tried it and condemned it most violently. On the next page is an article by an English surgeon, resident in Siam, who says he had done the old operation a thousand times and has done the new Smith operation 800 times; that under the old operation he had about 3 per cent. loss of vitreous and under the new he had 10½ per cent. that he had not had a single case of detachment of vitreous. These two gentlemen typically represent the opinions prevalent over the scientific world. To see this operation the first time the mind revolts. All your study in anatomy tells you that this must be wrong. But the oftener you see it the more you are convinced it is the operation of the future, and, although older men may not be able to put their prejudices aside and accept the new operation, I am satisfied that it is only a matter of time until we will use it as the operation of election."

"I have seen Dr. Greene do this operation 18 times, and in only one case that I can remember was there any loss of vitreous. I examined 35 people at the home (The old soldier's home), and the results were simply marvellous. You never get such results by the old operation, and I did not see anything in the operation that did not cause me to wonder at the results. It is a thing that is new and the men (old soldiers) are very much interested in this subject, and I feel that time will prove that it is the operation of the future."

*Cataract Operation Cases recently done by Lt.-Colonel Henry Smith, I.M.S.*

| No. | Name. | Condition at time of operation. | Notes of operation. | Time in Hospital. | Post-operative complication. | Vision. | Lens. |
|---|---|---|---|---|---|---|---|
| 1 | Badhshah | Normal | No complication. | 10 days | Nil | 6/5 | +10.50 |
| 2 | | | | | | 6/5 | +10.00 |
| 3 | Nihala | " | " | 11 days | " | 6/18.50 | +10.50 |
| 4 | Chet Ram | " | " | 10 days | Iris caught in one angle of wound | 6/7 | +10.00 |
| 5 | Subadar Nehala | " | " | 10 days | Nil | 6/18.50 | +10.00 |
| 6 | Mt. Dooli | " | " | 11 days | " | 6/6 | +10.50 |
| 7 | | | | | | 6/4 | +11.00 |
| 8 | Harbans Singh | " | " | 12 days | " | 6/18.50 | +11.00 |
| 9 | Ramrum Sitaram | " | " | 12 days | " | 6/5.50 | +10.00 |
| 10 | Major C.H. Hodgkins, I.M.S. retired | " | " | 12 days | " | 6/5 | +9.50 |
| 11 | Mt. Karm Bibi | " | " | 12 days | " | 6/5.50 | +10.00 |
| 12 | | | | | | 6/6 | |
| 13 | Mukhta Bibi | " | " | 10 days | " | 6/5 | +10.00 |

The test used for those who do not read Roman type was capacity to calculate bulls eyes supplied on a sheet by Messrs. Lawrence and Mayo, of Calcutta, adapted to the different distances, and which when tested with the normal eye are if anything a little more difficult than Snellen's test type. The test for those who read Roman type was Snellen's test type. Number 10—(Major C. H. Hodgkins, I. M. S., retired), writes me the following:—"with a + 9.50 D. lens I can read fine metre type at six metres and with a + 13.0, I can distinctly see the individual hairs on the back of my hand at a distance of a foot. I have seen a good deal of ophthalmic work done and I consider a result of this sort remarkable." I examined him and all the others myself.

In all these cases the media were absolutely clear and from experience I can say that their vision six months after operation will be even better than this.

The mere denial of facts like these which are capable of the most complete demonstration is neither a wise nor a scientific policy.

This case leads me to think that we should be careful in operating for cataract unless the after-treatment is absolutely under the control of the operator." H. V. W.

The Operation of Cataract in the Capsule.—Straub, M., Amsterdam (*Tydschr. v. Gen.,* August 1, 1908), states, that at the expense of a greater danger during the operation—loss of vitreous, infection of the vitreous—one gains a quicker healing after a successful operation and a nice black pupil without restes or secondary cataract. The most solid defenders of the operation are both the Pagenstecher's. Straub defends this operation, 1st, for the progressive congenital cataracts in the regressive stage, where he prefers it above needling; 2nd, for the massive cataract, which is due to iridocyclitis. A number of these have such a thick capsule, that one is obliged during the operation to remove the lens with the capsule. If these cataracts are operated in the usual way great probability exists for proliferation of the cells of the uvea, which surround the remaining lens capsule with new-formed connective tissue, which has a great tendency to retract. This prolongs the after-treatment, difficult and uncertain secondary operations are necessary and a large amount of the first acquired visus is lost.

The secondary cataract operation of Kuhnt will be often necessary, but this gives excellent result in eyes, the cataract of which is removed in the capsule. Many shrunken lenses will have to be gotten hold of with the forceps and be torn from the zonula. With the normal shape of the lens the loop of Snellen is an excellent instrument for traction. Mostly no loss of vitreous happens. Probably the vitreous is retained by new formed connective tissue.

Removal of a piece of the capsule induces easily proliferation of the rest and the formation of thick tough secondary cataract. He performs the operation as Kuhnt described. He loosens the capsule from the iris with the cystitome.

E. E. B.

## CIRCULATION.

Sudden Obstruction of the Retinal Circulation —the Report of Two Cases, and Notes Concerning a Previously Reported Case.—Harbridge, D. F., Philadelphia, (*Ann. Ophthal.*, July, 1910). The first case was reported in December, 1905, before the section on Ophthalmology of the College of Physicians of Philadelphia. The author's summary of the case is as follows. "Frequent recurring spasm of the retinal circulation in both eyes, with absolute blindness during the attack, covering a period of eleven days, but observed ophthalmoscopically only in the left eye, with restoration and preservation of full vision up to the present time. A moderate amount of retinal arteriosclerosis in a patient with rheumatic and specific history, with partial loss of patellar and pharyngeal reflexes, partial loss of sexual power, and the subject of vertigo and migraine attack, which latter, however, almost entirely disappeared."

Case 2. Summary. Male, age 63, merchant. "Obscuration of half the field of vision recurring at frequent intervals during a period of some fourteen months, followed subsequently up to the present by freedom from these attacks, in a patient with a moderate degree of arteriosclerosis, subject to weakened heart muscle and valvular regurgitation."

Case 3. Female, age 31. "Rapidly increasing loss of sight with permanent blindness ensuing, with the premonitory symptoms of misty vision, in a patient with apparently no evidence

of arteriosclerosis, with unusual varied changes in the retinal blood current, due to some form of obstruction; patient dying with symptoms pointing strongly toward uremia."

In the author's conclusions he believes that the above cases can be accounted for by assuming that primarily they depended upon some one of the various types of arteriosclerosis.

M. B.

## CONJUNCTIVA.

Phlyctenular Disease.—Brown, Samuel Horton Philadelphia (*American Medicine*, June, 1910), calls attention to the association of phlyctenular disease of the conjunctiva and cornea with eczematous conditions of the face. The general consensus of opinion is that the latter is not due to the profuse lacrimation, but to the same disturbances of nutrition as the former. The writer discusses the histopathology and clinical manifestations of the disease and says that owing to the succession of phlyctenules it may be regarded as a chronic disease. In treatment a boric acid and collyrium, with sometimes five or ten minims of adrenalin to the ounce is used, together with the usual line of remedies as indicated. The value of proper nutrition and enforcement of hygienic rules of living is emphasized. M. D. S.

A Case of Conjunctival Sclerosis.—Gallemaerts, Brussels (*Tydschr. v. Gen.*, October 3, 1908), saw a 72-years-old man with a conjunctival wound, which had sharp and shallow margins; the preauricular gland has chestnut size. Eversion of the lower lid. Examination for spirochaetes negative. Five weeks later papulous roseola. Treatment consisted in injections of enesiel. G. Saw only 2 scleroses among 70,000 patients. The other case was a 30-years-old woman with a primary infection of the caruncle. He considers extragenital syphilis not to be extra serious. E. E. B.

Hyalin and Amyloid Degeneration of the Conjunctiva (illustrated). Zeeman, W. P. C., Amsterdam (*Tydschr. v. Gen.* Oct. 3, 1908), finds this condition not yet described in the Dutch ophthalmological literature. Patient is 11 years old and has a swelling of the right upper lid, which slowly increased. It is now a diffuse swelling in connection with the

tarsus. The skin over it is entirely free, unchanged. Patient suffers from trachoma. A tumor is found in the upper lid between epithelium and tarsus and beneath the mucus membrane of the cul-de-sac, consisting of a strong adenoid proliferation, which shows in some places the texture of follicles and is built in other places of long rows of cells in a fibrous supporting tissue and in which spot-like hyalin degeneration. The tarsus was affected by this proliferation. The foreign material appears in the tissue toward the cul-de-sac; it seems partly formed by the broadened support fibres, partly it seems disposed between the connective tissue and the cells. These products have a strong refracting power. In some places the amyloid reactions are positive, nearly everywhere they stain as hyalin. This is also much found in the wall of the bloodvessels, where it narrows the lumen. Very pronounced is the appearance of hyalin in the smooth muscular cells of the tunica media. Larger conglomerats of hyalin contain often a fine network of connective fibers with some cells or nuclei. Often they are surrounded by a sort of capsule formed by some packed-together layers of supporting tissue, where between fine strips of hyalin and long flattened nuclei. Here and there the concentric structure suggests the origin from vessel walls. Between all these masses the above-mentioned adenoid tissue continues. Many giant cells lie against the foreign substances or contain parts of them.

Similar tumors are found in the lower lid of right and left eye and in the left plica semilunaris.

The adenoid hyperplasia is not a condition *sine qua non*. However, the hyalin is to be considered a degeneration product of the adenoid tissue.

Hyalin and amyloid are allied substances, which can originate out of each other, which produces the non-simultaneous appearance and disappearance of a number of color reactions. When here some parts give hyalin reactions and have some characteristics of amyloid, we may probably then have an intermediar product between hyalin and amyloid, the fixation perhaps diminishing the possibility for staining of this last.

His observations with those of the other investigators make it probable that we have to deal with an infiltration of an albuminous substance in the conjunctival clefts, which coagulates there and which penetrates sometimes the connective tissue

fibers, these directly changing in hyalin, resp. amyloid. The hyalin which is found in some cells he considers on the same line as in the giant cells, namely signs of defense against the foreign products.

As the process is one of infiltration, not of degeneration, we have to find the reason in the tissues themselves. We have to suppose, that the proliferated adenoid tissue undergoes changes, whereby the infiltrating substances are attracted and kept. The intimate cause of the process is still entirely unknown. F. E. B.

## CORNEA

Hyaline Degeneration of the Cornea.—Rupert, J., Kieff, Abridged Translation from the German Edition, February, 1910, Foster, M. L., (*Arch. Opthal.*, July, 1910, XXXIX, 341), reports three cases of the above ocular condition that have come under his own observation and discusses a case reported by Berlin in 1887 and one case reported by Gallinga and Luccarelli. In the first of the author's cases almost the entire upper half of the right cornea was covered by a newly formed tissue which extended about a millimetre over the limbus; color yellowish-white, slightly nodular, and slightly elevated above the level of the cornea. Its consistency was cartilaginous and it was sharply differentiated from the rest of the cornea below by a more or less horizontal line. The uninvolved cornea in the upper half on the nasal side was covered by pannus. The vessels of the bulbar conjunctiva, in the parts adjoining the growth, were injected and in places passed over on to the growth. The author gives the results of microscopic examination. In the second case the changes in the right cornea corresponded quite closely with those described in Case 1. In the third case the degenerated portion involved almost the entire upper half of the cornea; was a dirty yellow color and raised above the level of the rest of the cornea. The beginning of the degeneration dated back about 10 years and appeared first as a yellow spot at the upper margin of the cornea whence it gradually spread downwards.

The author compares his three cases with those quoted from the literature. In all cases there was a peculiar new formation of tissue in the cornea which appeared to be a grayish-yellow deposit raised above the level of the cornea and some-

what sharply differentiated. The surface was slightly rough with small vessels coming from the bulbar conjunctiva. At first the process was always localized at the upper margin of the cornea and then spread gradually downward. The course of the disease varied but was slow. In Berlin's case the disease had lasted two years, in the author's second case one year, and in his third case 10 years. The palpebral conjunctiva was trachomatous in all five cases; in two the trachoma was in the cicatricial stage, while three showed the typical picture of chronic trachoma with commencing cicatrization.

The author does not agree with Luccarelli that the granules were not trachomatous; he believes that the clinical evidence indicates that it was trachoma. In all cases trachoma of the conjunctiva preceded the appearance of the corneal trouble. In all of the author's cases there was a superficial, somewhat vascularized opacity of the uninvolved portion of the cornea and the clinical picture gave the author the impression that the new growth had developed from the pannus.

The author states that the prognosis is bad and that operative measures alone are indicated. Histologically the author's cases all showed a special tissue change manifested in the appearance of a homogeneous substance which he designates as hyalin, and he believes that the vessel walls should be looked upon as the starting point of the hyaline formation. He points out the histological relationship of the hyaline degeneration to trachoma or pannus.

The article is illustrated. W. R. M.

Central Annular Parenchymatous Keratitis.—Vossius, A., Giessen (*Klin. Mon. f. Aug.*, XLIII, 1, p. 657). This is an answer to the essay of Gilbert, reviewed in this number of Ophthalmology, who considers the annular keratitis as a transient stage in the course of parenchymatous keratitis, which otherwise does not differ from the usual diffuse parenchymatous keratitis. Vossius upholds his former opinion that this form, on account of its typical clinical aspect deserves a special place among parenchymatous keratitides. From further experiences with this disease, Vossius does not consider it as of exclusively syphilitic basis. C. Z.

Annular Parenchymatous Keratitis. — Gilbert, W. (From the Eyeclinic of Prof O. Eversbusch in the University of Murchen. *Klin. Mon. f. Aug.* XLVIII, 1, April, 1910, p. 460), studied all clinical cases of parenchymatous keratitis of the last two years from beginning to end. Fourteen out of 66, arranged in tabular form, presented the aspect of annular keratitis, which was first described in 1885 by Vossius as a peculiar and typical form. With exception of one case the affection was a transient stage in the couse of regular diffuse parenchymatous keratitis.

The annular form may develop in the second week, most frequently in the third and fourth weeks, and is most pronounced in the fifth week. Towards the end of from the eighth to the twelfth week every trace of annular opacity is abolished and the affection differs in nothing from diffuse parenchymatous keratitis equally as far advanced.

Another analogy lies in the frequent persistence of very intense central opacities with considerable impairment of sight, whereas Vossius maintained that the central opacity disappeared entirely without lack of transparency of any amount. Lues plays the chief etiological part, but it occurs also in parenchymatous kerititis of tuberculous origin. In short, etiology, onset, course and termination of the majority of annular opacities do not warrant a discrimination from other parenchymatous keratitides. The only peculiarity which might be claimed is that some very rare cases take an almost non irritative course without or with very scanty sprouting of blood-vessels. G. sees in the ring form, *i. e.* in the ringshaped arrangement of infiltrations nothing but the expression of a uniform advancing of morbid agents or toxins from the limbus. That this ring never forms in the extreme marginal zone of the cornea but always at least from 15 to 2 mm. from the limbus, must lie in peculiar anatomical conditions. On these must also depend that degenerative processes, as gerontoxon and leucomas generally spare the marginal zone of the cornea, which also remains free in hemorrhagic infiltrations. After de Lieto Vollaro found in the periphery the elastic fibres of the cornea united to thick fascicles and stronger than in the center, we may assume a denser structure of the marginal zone of the

cornea, which prevents the accumulation of larger cellular or serous exudations or concrements. C. Z.

The Etiology of Bilateral Congenital Corneal Opacity, With the Report of Three Cases.—Seefelder, Leipzig. Translated from the German Edition, Vol.LIII, No. 2, by Dr. Percy Fridenberg, New York (*Arch. Ophthal., July.* 1910, XXXIX, 359), reports three cases of congenital corneal opacity and believes that the clinical picture presented indicates an inflammatory origin of the corneal involvement. In two cases the presence of vascularized corneal scars and in one case the complete loss of the cornea shows that the eyes were affected during intra-uterine life by a severe inflammatory process. In regard to the etiology, the author excludes syphilis and believes the most probable factor to be a bacterial infection. The author adds that according to current theories there are two ways in which such an infection could take place, the pus germs reaching the cornea through the amniotic fluid, or, by metastasis, through the general circulation. He discusses these two methods of infection, octogenous and endogenous, and concludes that "in view of the fact that we have so far no clear case of congenital ulcer of the corneal surface, while undoubted histological data proves the existence of congenital inflammatory affections of the posterior wall, I am inclined to the view of Gallenga and of Terrien, that the larger part of congenital leucomata on an undoubtedly inflammatory basis is due to a pre-natal inflammation of the anterior uveal tract with a simultaneous or consecutive involvement of the cornea, and do not hesitate to attribute the opacities noted in my three cases to the same cause." W. R. M.

## GENERAL DISEASES AND THE EYE.

Parenchymatous Keratitis a Real Luetic Disease.—Igersheimer, J. (From the Eyeclinic of Prof. E. Von Hippel in the University of Halle, A. S., *Deut. Med. Woch.* 1910, No. 20, p. 938). The third child, aged 14, of apparently healthy parents showed a triangular parenchymatous opacity of the cornea of the almost non irritated right eye, nearly extending to the pupillary margin and intensely vascularized. There were no luetic stigmata, but Wassermann's reaction in the

patient and the mother was positive. The diseased portion was excised in the healthy parts, the deeper layers cauterized, and the defect covered with conjunctiva. It healed smoothly; the process was arrested and the opacity cleared up, so that after two months only traces were visible. No antisyphilitic treatment was given. The excised piece of the cornea contained a spirochaete pallida. For several reasons one may suppose that the micro-organisms remain, from fetal life, in the cornea and by so far unknown causes suddenly exert an inflammatory action. C. Z.

On Eye Symptoms in Graves' Disease.—Ohlemann, M., Wiesbaden (*Arch. Aug.,* 66, p. 23) reports his own eye-symptoms and opinion on Graves' disease. The episcleral, anterior conjunctival, and perforating, veins were ecstatic and tortuous, most intensely at the medial side, similar to pterygium. O. attributes this not to intoxication but to passive congestion by compression of the internal jugular vein by the enlarged thyroid gland, which also explains the frequent epistaxis, the edema of the face and, by compression of the subclavia, the occasional edema of the upper limbs. The fluctuations of symptoms may be due to the varying consistency of the struma, which periodically grows larger, especially if much liquid food is taken, and smaller. In the first case the tachycardia is more intense, while if the struma is smaller the pulse becomes perfectly normal. This may be observed repeatedly, especially in remittances of the disease, and may help to explain the relapses.

0.05 iodide of potash taken daily acted promptly on the tachycardia. From the third day the pulse was only 68 to 78, for 6 weeks. Antithryreoidin increased the frequency of pulse to 110 and 120.

The ocular palsies affected only the third nerve; right ophthalmophegia exterior, the levator being intact, commencing with the superior rectus. At the end of the second month the first improvement was noticeable, also beginning in the superior rectus. Alt had good results with milk diet, but in young persons. Therefore C. did not change his mode of living, only took 1 drop of tincture of iodine pro die in water. The paralysis of the ocular muscles receded in the same tempo as it had progressed. Constant and Faradic currents seemed to

have no effect. Disturbances of the color sense were not observed, but after using the eyes they became tired just as the muscles of the limbs, perhaps from lack of normally assimilated albumen.

Exophthalmus of one eye commenced in the fifth month of the disease, followed half a year later by that of the other eye. In the fourth year it became almost normal. Tremor and general debility, which increases towards evening, are especially distressing to the patient. Chorea and choreatic motions also deserve attention and belong, according to O., to the early symptoms of irritation at a time when the essential signs are not noticeable.

The ophthalmoplegia most likely was nuclear, from intracellular or extracellular, anatomical processes, in form of capillary hemorrhages or vascular changes on the floor of the fourth ventricle. Dysphagia and weakness of the lower limbs suggest a bulbar participation.

From numerous observations might be inferred, that the normal thyroid gland contributes to the digestion of albumen, but if diseased, the albuminous substances furnish products of fermentation, which act toxically. Chemical and mechanical causes seem to create the complex symptoms of Graves' disease. If ingestion of carbohydrates and fat causes symptoms, diabetic signs may be observed. It also makes the impression as if Graves' disease and diabetes were related, the first in functional disturbances of the thyroid, diabetes in those of the pancreas. Not rarely both occur simultaneously.

As soon as the diagnosis is established continued rest in bed is urgently recommended, traveling must be discouraged as riding on the railroad may cause considerable arythmia.

O. found as further essential symptoms: In closing the eyes, the lower lids left a portion of the sclera 3 mm wide, uncovered, lowered activity of the frontal muscle, and tinnitus aurium with normal condition of the hearing organ, *i. e.* participation of the facial nerve.

With regard to the action of iodin, O. mentions that the normal percentage of iodin is from 0.3 to 0.9 mgr. to 1 gram of glandular substance. If the gland grows the percentage of of iodine becomes too small, if not increased by the food. Antithyroidin helps in young persons, but not iodine. C. Z.

Eye Symptoms in Basedow's Disease.—Topolanski (*Wien. Med. Woch.*, April 2, 1910).

A ribbon shaped injection of the blood vessels above the four straight eye muscles is sometimes observed as an early symptom of Basedow's disease. This injection stops at a distance of from two to three mm. from the cornea, and disappears as soon as the exophthalmos develops. Sometimes, instead of the injection there are to be seen two well filled veins in the region of the eye-muscles emerging from the depth.

Graefe's symptom is to be explained by an increase in the tone of the levator palpebrarum, and a diminution in the tone of its antagonist, the orbicularis palpebrarum. J. G.

The Ocular Manifestations Associated With Acne Rosacea, With Report of a Case of So-called Rosacea Keratitis.—Holloway, H. P., *Philadelphia* (*Arch. Ophthal.*, July, 1910, XXXIX, 321), gives a detailed clinical history showing a serious ocular involvement complicating a case of acne rosacea. The patient had had two previous similar attacks of eye involvement. Examination of the right eye showed photophobia, blepharospasm and lacrimation; lids swollen with thickened nodular margins; palpebral conjunctiva thickened and mucopurulent discharge present; bulbar conjunctiva injected; lower quadrant of cornea covered by vascular, superficial, dense infiltrate which began at limbus and extended almost to the middle of the cornea while the remaining portion of the cornea was hazy, with several superficial, thin, grayish-white punctate infiltrates. In the left eye, at the lower limbus, there were three small discrete elevations resembling phlyctenules.

Dionin, hot fomentations and boric acid solution were used and later sodium hyposulphite internally with local applications of a solution of zinc sulphate and potassa sulphurate.

The author reviews the literature. W. R. M.

The Influence of Pregnancy and Labor Upon Diseases of the Eye. Fejer, Julius, Budapest. Abridged translation from the German Edition Nov., 1908, by Dr. M. L. Foster (*Arch. Ophthal., July*, 1910, XXXIX, 369), discusses the influence of pregnancy and labor upon certain eye diseases and the indications for the termination of pregnancy. He cites

the case of a woman, a multipara, who had a high progressive myopia and who had observed that her myopia increased greatly after each confinement. Right eye showed myopia of 20 D; left eye, 18 D. In the fundus there was a circular conus half the size of the papilla, and in the centre moderate chorio-retinal changes in both eyes. Abortion was induced and during the three years that have elapsed the myopia has not progressed. He adds that at what time and after how many pregnancies such advice should be given depends on the decision of the attending physician and of the ophthalmogist, on the objective conditions, and on the desire of the patient. He refers to Schoeler's case in which detachment of the retina took place during pregnancy, although no albumen could be found in the urine, was reattached after puncture of the sclera, and became detached again before confinement. A sister of this patient was also blinded by detachment of the retina during pregnancy. W. R. M.

Metastatic Ophthalmia Following a Furuncle of the Neck. — Aurustein. K., Bromberg. (*Klin. Mon. Aug.*, XLVIII, 1, p. 631). The right eye of an otherwise healthy man, aged 24, who for 2 weeks had a furuncle at the right side of the neck, suddenly became painful and inflamed under chills and rise of temperature. V. was reduced to 5/15, exopthalmos and chemosis developed, the lower half of Descemet's membrane was covered with fine fibrinous deposits, in the vitreous were flocculent opacities, the border of the disc indistinct, retinal veins engorged, retina opaque, visual field contracted. After 2 days V.=o, eyeball more protruded and the pain excruciating. About 2 weeks later the exophthalmic, hard, and blind, eyeball was incised by a vertical and horizontal section but no pus came, only blood in which no bacteria were found. A month later the cornea and lens were clear, iris atrophic and adherent, greyish yellow exudations covered the retina. The eyeball grew smaller.

Undoubtedly staphylococci or streptococci immigrated from the furuncle into the blood, were retained by the narrow capillaries of the retina and produced the metastatic ophthalmia. This seems to be extremely rare. According to Axenfeld there are only 2 publications on metastasis after furuncles, which, however, are not exempt from criticism. That an injection

of anti streptococcic serum in A's case was not successful is conceivable, as furuncles, in the predominant majority, contain only staplylococci. Nor was the injection of diptheric serum, which has been recommended in infections of the uveal tract, of avail, as A. had observed before in similar cases. C. Z.

On the Path of Lyssa in the Eye.—Koenigstein, Prof., and Holobut, Dr. (From the Serotherapeutic Institute of Prof. Paltauf, at Wien. *Archiv. fur Aug.*, 66, p. 6). Kraus and Fukahara found that next to the subdural method of infection with lyssa the corneal infection is the most reliable. In order to ascertain the path on which the virus passes from the eye to the brain, Koenigstein and Holobut made numerous experiments which are reported, with the following results: 1. The infection with lyssa virus by corneal scarification can be arrested, if the cornea is abscised or destroyed by acids or cautery, within a certain time, up to 6 hours. 2. The lyssa virus is found after a short time in the aqueous. Timely cutting of the optic nerve or enucleation of the eyeball prevents this infection. Previous resection of the optic nerve protects against corneal infection. 5. In corneal, as well as subdural, infections the lyssa virus penetrates into the optic nerves, and emulsion made from the optic nerves can produce lyssa. As early as 3 days after subdural infection the lyssa virus is contained in the optic nerves, so that the problem of the migration theory of sympathetic ophthalmia will hardly be solved by this way. C. Z.

An Unusual Case of Paralysis of Accommodation After Diphtheria.—Weigmann, E., Hildesheim (*Klin. Mon. f. Aug.* XLVIII, 1, April, 1910, p. 454. A healthy looking boy, aged 12, had a bilateral paresis of accommodation after severe diphtheria. It soon subsided on the left eye, but persisted over 3 years on the right eye, together with mydriasis. Excepting slight mydriasis, a complete restitution was observed after 4 years.

Only one case of such long duration has been published by Mühsam. The combined paresis of accommodation and of the sphincter pupillae suggested a nuclear affection, perhaps a hemorrhage, as both nuclei are close together and are supplied

by the same nutrient blood vessel. The diphtheria toxin may create various changes of the vascular walls which, as proven by postdiphtheric hemiplegias, may lead to extensive hemorrhages, as cause of paralysis of accommodation. Schirmer assumes, by exclusion, a peripheral neuritis, of the portion of the ciliary nerves between eyeball and ciliary ganglion. C. Z.

Opthalmic Herpes Zoster With Homolateral Isolated Paralysis of the Abducens.—Langenhan, Dr. (From the Eyeclinic of Prof. J. von Michel in the University of Berlin. *Zeitsch. f. Aug.*, XXIII, June, 1910, p. 522). A man, aged 60, who gave a luetic history and positive Wassermann's reaction, was seized with violent neuralgia of the first branch of the left fifth nerve. After a few days characteristic hemorrhagic herpes vesicles developed on the left side of the forehead extending from the median line to the skin of the head, the left eyebrow and the outer commissure of the lids, with considerable edema of the upper lid and lacrimation, *i. e.* in the area supplied by the frontal (supraorbital, infratrochlear), and lacrimal nerves. Five days later a complete paralysis of the left abducens had developed with edema of the lower lid and a new eruption of herpes vesicles at the inner angle and the left side of the nose in the area of the infractrochlear nerve. The sensibility in the field of the first and second branches of the fifth nerve was very much diminished. The eyeball remained intact. Intraocular tension was lowered, preauricular gland swollen. Under aspirin, iodide of potash and electricity the vesicles dried up within 5 weeks and left pigmented scars, the sensibility of the skin returned and the paralysis of the abducens improved, so that after 2 months double images were noticed only in extreme lateral position.

The fact that the cornea was not affected spoke against the assertion of Hutchinson, that the eruption of herpes on the cornea depends on an affection of the nasociliary nerve, as the long root of the ciliary ganglion and the long ciliary nerves arise from the nasociliary branch. The author considered the affection of the first branch of the fifth nerve as a luetic neuritis and perineuritis which was at first localized to the frontal and lacrimal branches and spread to the nasociliary branch and the near abducens. C. Z.

On Retinal Hemorrhages After Influenza.—Wiegmann, E., Hildesheim (*Klin. Mon. f. Aug.* XLVIII, 1, April, 1910, p. 451). A man, aged 28, who, a year ago, had influenza, from which he recovered very slowly, complained, that for a few days he saw with his left eye the objects indistinct and peculiarly speckled. The optic appeared reddened, but its outlines were distinct, veins more filled, a few very fine hemorrhages on the disc. A large area of the retina was covered with streaky and round hemorrhages reaching to the macula, but leaving it intact. V. normal. After a month, V. = 5/xv, the hemorrhages commenced to grow paler; after another month V. normal, veins of normal lumen and disc of normal color. Seven months after the onset there were only 2 slight traces of the hemorrhages and, after 3 further months, the restitution was complete.

W. ascribes the affection to a hemorrhagic diathesis from the injurious influence of the toxins of chronic influenza on the walls of the retinal blood vessels. He refers to Franke's elaborate paper on chronic influenza and asks whether the visual disturbances observed in this affection, might not be due to a manifestation, by exhaustion, of a hypermetropia or a muscular or accommodative asthenopia. C. Z.

Optic-Atrophy by Trypanosomiasis. Use of Atoxyl or Framboësia.—Faber, E. and Starcke, Aug. Deventer-Zutfen (*Tydschr. v. Gen.*, April 4, 1908) examined a 30 years old man, who lived in mid-Africa from 1900 to 1904, and after 5 months in Europe returned from Sept., 1904, till the end of 1906. In May, 1905, he had haematuria, for which chinine-clysters and much tea were given; after 3 days blood disappeared from the urine, not to return. In the end of that year he got a skin disease, beginning as an ulcer on the thorax, from which blisters formed, healing with a strongly pigmented scar; more such appeared over the thorax, which itched very much. Every one suffered from this "zaarnes". This may have been framboësia (Yaws), but may also have been due to trypanosome-fever. He had never lues nor gonorrhoea. He felt sick in Oct., 1906, in the "Haute Sangha" (Mid-Congo), was dejected, weary, weak; and suffered from symptoms, known as propulsy: he ran quicker, than he wished, on horseback he would fall; he had the feeling of being pulled forwards. He

was sent home with the diagnosis of a grave form of malaria cachexia. In Brazzaville lumbar puncture showed trypanosomes in the cerebro-spinal fluid, and also in his blood. Two or three injections of ½ gram atoxyl were given under the abdominal skin. Dr. Martin, in Paris, found the parasites in the spinal fluid during Jan., 1907. He was sent home in April with directions for injections of ½ gram atoxyl every 2 weeks and to return in July. He felt then alright. Up to Aug. he had used about 10 grams atoxyl. His appearance is slow, speech lower and somewhat scandans, the gait slightly spastic-paretic-atactic, although not very striking. The sensitiveness of the joints in the legs is somewhat disturbed. He has a certain amoenomania: he is very contented and seems not to doubt his entire recovery. His facial expression is intelligent, but somewhat apatic. The blood is rich wth large mononuclears.

He has abducens-parese and a slow nystagmus with large oscillations. Both discs are distinctly atrophic. About a week later he began to have disturbances in sseeing; atoxyl was stopped. On Aug. 24 atrophia nervi optici was diagnosed. The vision kept on getting worse. Protoiod. hydrarg. was given without result. The general condition and the vision became better with no drugs. Jan. 13, 1908, V. O. D. = 5/viii; V. O. S. = 5/xxxvi. The perception for all colors is weak. The visual fields smaller than normal. The discs are pale gray, arteries and veins much narrower. Since Aug., 1907, the vessels have become much narrower and the visual fields have shrunk.

The writers believe that not the atoxyl, but rather the trypanosomiasis is the cause of the optic nerve atrophy, for the following reasons:

1. With trypan, diffuse infiltration of the meninges and around the vessels is found over the entire cerebrum. No reason exists, why the cerebral part, called optic nerve should be spared.

2. A diminished visual acuity is not easily detected in comatous or apatic patients; on postmortem examination a slight optic affection is easily overlooked. When the sufferer recovers, after atoxyl use, the disturbance appears, in the same was as disturbance of function often appears after punction or operation with cerebral tumor.

3. Although no optic atrophy in trypan. gambiensis is described before the use of atoxyl, localisation in other parts of the eye, as keratitis, opacity of the cornea with pure cultures of parasites, is one of the frequent symptoms.

4. In the related South American horse disease Mal de Caderas keratitis and iritis are common complications. Trypanosoma equinum produces in the dog often iritis and blindness. It is also found in the African Nagana (trypan. equiperdum). Marek found degeneration of the posterior tracts and of most sensitive nerves in the Dourine.

5. In syphilis, related to trypan. we know different stadia of neuritis and atrophy of the optic nerve.

6. Dementia paralytica, a process alike trypan. with exudation of serum plasma-cells and lymphocytes in the meninges and around the vessels, gives in 4-12% of the cases optic atrophy.

7. The disease picture of this patient shows marked conformity with multipel sklerosis. If the anamnese was not known and the blood change this diagnosis would have been made. In that disease optic atrophy is a chief symptom. The propulsion also shows that the base of the brain did not remain free. E. E. B.

Vaccinia of the Eyelids.—Wolff, L. K., Amsterdam (*Tydschr. v. Gen.*, August 29, 1908) reports the second case, which appeared in Straub's clinic since 10 years. A 3 years old girl is vaccinated on both upper arms on July 27; on Aug. 4 the mother notices, that the right eye becomes swollen; Aug. 6 patient is brought to the ophthalmological clinic. The lids of the right eye are very thick and red; the margins cannot be seen as they are covered by the edematous skin of the lids. The secretion is yellow and contains leucocytes and staphylococci. Three pretty large ulcers with yellow exudate sit on the upper lid margin and two on the lower lid margin. On the skin of the lower lid, near the margin, 3 small vesicles are easily recognised for beginning pocks. The conjunctiva tarsi is red and swollen; cornea sound. A small lympnode before the right ear. On both upper arms 5 ulcera, each about 5 mm. large, with greyish necrotic exudate. Temp. normal. The child left the hospital 6 days later entirely recovered.

W. considered it desirable, that, as the law forces indirectly vaccination, all cases of harm through vaccination should be published; therefore this publication. E. E. B.

## GLAUCOMA.

Optic Nerve Changes in Glaucoma. - DeVries, W. M., Amsterdam (*Tydschr. v. Gen.,* Oct. 3, 1908)) speaks in the meeting of March 25, of the Amsterdam Medical Society, about the results of an investigation of the changes found of the optic nerve and retina with glaucoma with his conclusions about the origin, demonstrated with lantern slides.

Schnabel's cavities show an insufficient proliferation of glia. A connection with higher intra-ocular pressure is difficult to understand and is very improbable as they appear in a few cases without glaucoma; that in one of deVries' cases, where they were present, the tension was higher; and that they are found far backward behind the lamina cribrosa, where therefore the intra-ocular pressure is out of reach.

A phenomenon, which does not agree with the pressure theory, is the presence of retinal tissue in the glaucomatous excavation. This happens by new formed connective tissue, lying fore on the disc, which pulls while shrinking the nerve fiber layer towards the papilla and the external retinal layers in the excavation. Sometimes this layer of new connective tissue is very small and once he could not find in such a case any new formation of connective tissue, so that he thinks that the shrinking of the central part of the papilla itself produces the presence of retina in the excavation.

The retina can descend to the lamina cribrosa without the lamina being receded backward, which demonstrates a shrinking process not caused by intra-ocular higher tension.

Interruption of the conduction in the papilla produces retinal atrophy until the ganglion layer. The glaucomatous atrophy however goes further; the structure of the retina remains recognisable, but the layers atrophy from within outward, the least the external nuclear layer. Perhaps changes of the retinal vessels cause this and a lesion may go out from the vitreous.

The glaucomatous excavation should therefore not be considered a true pressure excavation, while the presence of the Schnabel's cavities and the retinal parts in the excavation and

perhaps the peculiar retinal degeneration prove, that we have to deal with a specific disease, which can be called with Schnabel "glaucomatous optic affection".

Generally glaucoma is considered due to lymph retention, hindrance in the lymph conveyance, shown in the large majority of cases anatomically as closure of the angle of the anterior chamber or analogous changes. A part of this surplus leaves the eye through the optic nerve. This may have toxic properties, which produce in certain cases inflammatory symptoms. Nearly always in the glaucomatous eye a small cellular infiltration is found around the vena centralis retinae and often new formed connective tissue containing vessels is found at the surface of the disc.

We may also suppose, that in some cases during a longer time the compensatory lymph conveyance along the optic nerve produces equilibrium in the anterior part of the eye. Then lymph retention exists in the anterior part without higher tension, w. o. w. glaucoma simplex. This can also explain the transition of the glaucoma simplex in a glaucomamatous form with higher tension, namely when this compensation fails.

The cavernous atrophy could be explained by the abnormal quantity of toxic lymph producing disappearance of nervous tissue. This explanation would account for the extent of this cavernous degeneration, as far as the lymph current goes, that is very far towards the brain.

Our insufficient anatomical knowledge does not permit to explain the peculiar limitation of the visual field, which progresses from the nasal side. We do not know the presentation of the different retinal parts in the disc. The toxic lymph must first damage the fibres around the central vessels and in the physiological excavation. We know that most centrally the fibres lie for the most peripheral retinal parts; in the temporal part, where mostly the physiological excavation is, lies the papulo-macular bundle; from own observation de Vries knows that the retinal part temporal over the foveal region is represented by a bundle of fibres, which lies in the disc and in the optic nerve above the central vessels. Further investigations must demonstrate if the position of the perivascular bundles of fibres agrees with the two temporal quadrants of the retina and thus with the two nasal quadrants of the visual field, which are lost first in glaucoma. E. E. B.

## INJURIES.

Rupture of the Sclerotic, With Subconjunctival Dislocation of the Crystalline Lens.—Keiper, George F., Lafayette, Ind. (*Opth. Record,* January, 1910). The patient, an evening before, while husking corn in a stooping position, was struck by a cornstalk from above, the injury involving the right eye. It immediately blinded him in that eye, and he went to see his doctor, who ordered hot applications to be made to the eye. In the morning he again saw his doctor, who, recognizing the gravity of the injury, referred him to the author. The following condition was present: The eyeball was very soft, the tension being—3. Considerable chemosis was present and the anterior chamber was filled with blood, at least. Under the conjunctiva above could be seen the crystalline lens apparently in its capsule. The conjunctiva was unruptured. Just back of the ciliary region was an irregular tear in the sclerotic, about a centimeter long, parallel with the margin of the cornea. His vision was nil. Prognosis was given as bad. His ultimate vision with a plus 10.00 D. lens is 20/CC, and the last examination made a few months ago, shows no diminution. The iris is folded back above, giving the appearance of irido-dialysis. To this date the eye has given him no trouble. G. I. H.

Atrophy of the Optic Nerve After Contusion of the Eyeball.—Kunst, J. J., Tjimahi, Java (*Centralbl. f. prakt. Aug.,* June, 1910, p. 164.) A healthy soldier, aged 27 years, fell with his right eye on the stump of a reed, about four inches thick. Immediately vision on this side was very much diminished and the eye painful. At the examination six hours later the lids were very much swollen, red and blue, conjunctiva very much swollen, with a subjunctival hemorrhage. There was an excoriation of the skin of the lower lid and a small wound near the lower retrotrasal fold, but no perforation, exophthalmos nor disturbance of motility. The pupil, rather wide, reacted sluggishly to light. Ophthalmoscopic condition negative. After three days the light blue iris commenced to turn green (from hemorrhages into the ciliary body?). V=5/30. Almost daily the eye was examined ophthalmoscopically. On the 19th day after the accident the disc appeared a little paler: V=5/20. A few days later the atrophy of the optic nerve was very marked,

and one month after the contusion there was complete genuine white atrophy. Wassermann's reaction was negative. Four months after the accident the central retinal vessels commenced to become atrophic. K. emphasizes that literature is very scanty on this subject. C. Z.

Traumatic Affections of the Eye.—Lans, L. J. (*Tydschr. v. Gen.,* December 19, 1908), treats this subject before the Society for Study of Accidents-Medicine in its meeting of October 25, 1908. In the Netherlands during 1903 and 1904, 30,018 resp. 39,135 accidents were reported, of which 1,214 and 1,746, that is good 4%, were eye accidents. In 1903, 396 foreign bodies in the eye and 718 other traumata were reported; in 1904, 864 and 882. The most happened in the building trades, then with steam and other implements.

He mentions the following case of sympathetic ophthalmia: An 11-year-old boy, chopping wood, got a splinter in his left eye. The next day a corneal wound extending in the limbus with traumatic cataract was found. The iris prolapse was cut off and some lens masses evacuated, and after three weeks he was going to be discharged, when some hours previous the right eye shows symptoms of irritation. Direct extirpation of the wounded eye could not prevent the developing sympathetic ophthalmia and under often great pains the irido-cyclitis formed membranes in the pupil with extended synechiae posteriores, vision becoming 2/24.

In machine factories laws exist for prevention of accidents; however, not for the wearing of protective spectacles. He shows the model of Hillemans-Snellen. But even if they hang alongside the grindstone they are hardly used.

After some ocular trauma often a neurosis appears, especially in physically weak. A demand for higher rente (damage annuity) ensues. Not only the wounded eye, but also the healthy one, shows symptoms, as f:i. photophobia; flickerings a. s. The diagnosis between simulation and traumatic neurosis is often very difficult.

Lans made a small statistic about the working power of monoculars before and after the accident in 1906 and found of 50 monoculars, 2 who earned tempararily less and 2 who earned constantly less through change of work; 38 earned as much as before the accident, and 8 earned more. It is important, if the

accident happens to a normal or already subnormal eye; it would be well if the condition of the eyes of the workmen was examined on entrance. He thinks it desirable not to give the smaller rente of 10 to 15%, which are given especially for maculae corneae, as the person can do very well without it, and it continually reminds him that he is theoretically worth less, although he does not notice it in his daily work, which has a demoralizing influence. E. E. B.

## INSTRUMENTS AND METHODS OF EXAMINATION.

Localization of a Piece of Brass Within the Eyeball. With the Sideroscope.—Asmus, E., Düsseldorf. (*Klin. Mon. f. Aug.* XLVIII, April, 1910, p. 444). A man, aged 18 years, while working on brass with hammer and chisel, sustained a wound near the inner limbus with prolapse of iris. Hirschberg's sideroscope failed to indicate a foreign body in the eye. On the third day the patient was sent to A., who found the vitreous very opaque so that he could not see anything of the fundus or a foreign body. After magnetizing with the large magnet his sideroscope showed a constant deviation of 15 mm. on the scale for telescopic observation, 10 mm. downward and inward of the limbus. However, at a small distance from that place no deviation occurred. From this A. concluded that possibly a piece of brass which contained traces of iron was in the eye and considered the prognosis for extraction very bad. An attempt at extraction through a meridional incision failed.

After 4 weeks a severe cyclitis developed which necessitated exenteration. A piece of brass, weighing 67 mgr., 8 mm. long, 3 mm. wide, 1 mm. thick was found in the lower nasal portion of the eyeball.

The case showed the sensitiveness of the old sideroscope and the utilization of its greater or lesser deviation for the prognosis of the magnet operation. A. also mentions that the sideroscope reacts very faintly to some modern, slightly magnetic, kinds of steel, which renders the prognosis of the magnet operation bad. C. Z.

## IRIS.

Congenital Atypical Coloboma of the Iris Upwards.—Puetscher, O., Klagenfurt (*Centralbl. f. Prakt. Aug.*, April 1910, p. 97), of the left eye in a boy, aged 4 years, who also had a fissure at the site of the lower tearpoint, behind this on the lid border a fleshy prominence resembling a second caruncle, ectasia and blennorrhoea of the lacrimal sac, and a very fine fistula in the upper lip below the insertion of the left nasal wing. V.=3/30, V. Of the normal right eye 3/5. The coloboma was directly upwards. The small and large circle of the iris were well differentiated and could be clearly discerned along the coloboma. According to the theory of Hess, P. explains the atypical coloboma by an arrest of development by persisting mesodermal bands. C. Z.

Atrophy of the Iris of an Unusual Form.—Goldberg, H. G., Philadelphia. (*Ann. Ophthal.* July, 1910). An employee of a locomotive works was slapped in the face by a large leather belt which broke. His face was bruised and cut and he was rendered unconscious for a few moments, and upon recovery was found totally blind. Vision was gradually returning when an attack of facial erysipelas set it back to where it was. It gradually returned, however, in both eyes, but never improved beyond, O. D. 5/30, O. S. 2/50. The immediate effects of the injury to the eyes was manifested by O. D. deep anterior chamber, pupil eccentric, oval and dilated, tension slightly plus, several localized granular lenticular opacities and just below the macula a curvilinear lesion, yellowish in color, with pigmented borders. O. S. Ant. Ch. shallow, pupil oval, a few posterior symechia, on temporal side of disc a small pigmented area from a hemorrhage. Later the pupil of the left eye became dilated ad maximum, immobile and markedly degenerated in appearance. In this eye there was also a well-pronounced neuroretinitis and a localized retinal detachment. A posterior sclerotomy was performed and subretinal fluid allowed to escape. The final status of the case presented changes in the iris as follows: Left eye, two large areas of absorption in the iris plane of 160°; here the stroma has undergone an atrophic change, exposing the underlying retinal pigment. Right eye, a number of pigmented points which appear as though laid on the surface, instead of

being a part of the retinal pigment layer exposed by atrophy. They might be described as proliferations from the retinal pigment cells, which are reaching up through the fibers of the stroma to bud upon the surface; the atrophic changes were a later change, a true degeneration, in which the proliferated cells also suffer. The two eyes represent different steps in this process, the left being more advanced and showing both changes taking place at the same time. M. B.

Congenital Anomaly of the Iris.—Faber, E. Deventer (*Tydschr. v. Gen.,* August 1, 1908) shows a 25-year-old patient who has a large myopic eye, the pupil of which is a narrow slit, which deviates a little from the vertical; namely, goes downward somewhat toward the median. It is not in the middle of the iris plane, but inward of the sagittal plane of the eye. The iris has in the upper external quadrant a congenital coloboma reaching the periphery. The color is light brown around the slit from pupil toward the nasal side about 1 mm. toward the temporal, about 2mm. broad, and apparently of longitudinal structure, which shows better, when the pupil becomes smaller. A good pupillary reaction is present, although the enlargement is small. When the pupil becomes narrower the margins touch for some distance up and downward, while the rest of the margin bends somewhat forward. The rest of the iris has a dark-brown color. Extensive atrophies of chorioid and retina are visible, the result of the high myopia. V=1/8.

Patient came in for a hemorrhage in the macula of the left eye, which has a myopia of 22 D. with a large chorioiday atrophy, which reduces the vision to below 2/xviii. It habs also a coloboma iritis, but incomplete, and the central part of the iris is differently colored from the external. E. E. B.

## LACRIMAL APPARATUS.

A Case of Fungus Concrement of the Lacrimal Canaliculi.—Von Herrenschwand, F. (From the eye clinic of Prof. St. Bernheimer in the University of Innsbruck. *Klin. Monatsbl. f. Aug.,* XVLIII, 1, p. 640). A farm servant who took care of the pigs, complained of burning of the left eye, followed by epiphora for a year. The upper tear point was prominent and its surroundings cone-shaped and thick-

ened, its lumen dilated, discharging milky secretion. The conjunctiva of the lid was velvety, red and densely covered with follicles. As the suppuration did not cease after extirpation of the tear sac, the canaliculi were incised. The upper one was ectatic like a cyst and contained an uneven brittle concrement of the size of a lentil, which reacted negative to iodine. Microscopically it contained numerous threads of streptothrix, and cultures revealed bacillus mesentericus ruber, after the staphylococcus pyogenes aureus and albus had been eliminated. A brief review of the incident literature is given. C. Z.

Gummatous Syphilis of the Lacrimal Gland.—Mendez. Enrique, Montevideo. (From the eye clinic of Prof. Th. Axenfeld, in the University of Freiburg. *Klin. Monatsbl. f. Aug.,* XLVIII, I, p. 533). Syphilis of the lacrimal gland is a very rare affection. After a brief review of the few cases published, M. gives the histological description, with illustration, of a gumma of the lacrimal gland of a man, aged 51, of the size of a hazel nut which was removed by Dr. Thier of Aachen and sent to Prof. Axenfeld for microscopic examination. The tumor consisted of typical granulation tissue and, in the necrotic parts, of cells in various stages of alteration, *i. e.* typical gumatous degeneration. The vessels presented mutations in all 3 coats, especially the intima and adventitia, viz. endarteritis, endopholebitis, periarteritis and perphlebitis. The peripheral lobes were partly well preserved, but the lymphocytic tissue between the tubuli proliforated. The staining according to Levaditis was negative, and no spirochaetae were found. The gumma of the lacrimal gland here described showed the same structure as the gummata of the salivary glands. C. Z.

## LIDS.

Initial Sclerosis of the Eyelids.—Ginzburg, J., Wien (*Centralbl. f. prak. Aug.,* May, 1910, p. 129). Primary syphilitic affections of the eye are rather rare. Since the first publication of a chancre of the lid by Ricord in 1850, about 240 cases of primary affections of the lids, 27 of the conjunctiva, have been published. G. collected from the Russian literature 27 cases of initial sclerosis of the eye, which were

carefully observed and followed up. The essential parts of the clinical histories, especially mode of infection, local and general symptoms are arranged in tabular form. In 22 cases general affections were noted. Although extragenital infections are in general more frequent in women the primary affections in Russia occurred more often in men (6 to 11). G. attributes this to a special etiology in Russia. In almost over half of the cases (13) the disease was caused by a syphilitic person licking the eye of the patient with the tongue for the removal of a foreign body. Therefore the men who in various trades injure their eyes more frequently, furnish a greater contingent.

The following case is reported: A midwife, aged 65, who from birth had a paralysis of the left facial nerve, noticed, on March 20, 1905, a swelling of the left lower lid like a hordeolum with a whitish grey apex, which became larger, so that she consulted G. on April 12. The lids and cheek were swollen and red, the yellowish coating of the tumor in the middle of the border of the lower lid could not be wiped off. The tumor was 1 inch long, 5 inches wide. Its borders were ulcerated, but the underlying tissue was of cartilagineous consistency. The preauricular, postauricular and submaxillary glands were swollen and painful. The lower retrotrasal fold was very much swollen and chemotic and the ocular conjunctiva injected.

The history revealed that, on Feb. 22, at a confinement of an apparently syphilitic woman blood and amnious liquor squirted into the left eye of the patient who did not wash it out afterwards.

The treatment consisted in cauterization with nitrate of silver and sublimate applications. On May 30 the patient wrote that at the dermatological clinic at Moskow a syphilitic roscola had been ascertained and antisyphilitic treatment instituted. This disappeared after a few days and also the swelling of the lid and glands under mercurial inunctions.

A yellowish white stripe at the inner angle of the lid, plica semilunaris and retrotarsal fold, which appeared 3 weeks after the onset of the disease, most likely was an early mucous patch, *i. e.*, a secondary affection, near the primary affection. C. Z.

## MATERIA MEDICA AND THERAPEUTICS.

Investigations on the Action of Mercury and Iodine in Experimental Syphilis.—Tomaszewski, Dr. (From the dermatological clinic of Prof. Lesser in the University of Berlin. (*Deut. Med. Woch.*, 1910, No. 14, p. 653), sums up: Mercury, but only in large doses, shows a preventive action in experimental syphilis of rabbits. Its action is due partly to increase of the defensive substances of the organism, partly to checking factors, chiefly to specific bactericidal properties. Iodine shows no preventive action. Monkeys and rabbits become diseased within the normal time, although subjected from the moment of inoculation to a continuous and intense influence of iodine. The syphilitic manifestations of such iodized animals readily heal under mercurial treatment. The action of iodine is indirect, but cannot be characterized more precisely. C. Z.

On the Application of Escaping Steam in Ophthalmology. Perlmann, A., Iserlohn (*Klin. Monatsbl. f. Aug.* XLVIII, 1, p. 659), reports his observations on the treatment of eye affections with steam. The apparatus, which may be procured from Mr. Rumpff, Iserlohn, for about 65 cents, consists in a water heater from which two bent tubes go upwards. These can be rotated around their axis, ending in funnels protected by screens of wire. Fifteen cm from the funnel the steam has a temperature of 50°. The closed eyes can be approached to 10 cm. when the steam measures 60°. After the treatment the eyes must be washed lukewarm and carefully dried. Fifteen minutes later the patient can go outdoors. The skin of the lids and neighborhood is somewhat loosened and red, the conjunctiva injected and succulent, anesthetic to the touch and very much less sensitive to astringents. In old conjunctival catarrh the steam is directed on the open eyes, which increases the action of astringents. The preparatory action of the steam resembles that of dionin, without being painful.

A case of traumatic cataract is reported in which the maturity of the cataract was completed in a few days by steam, after the corneal epithelium had been previously loosened by 1% holocain (as shown by Guillery), which accelerated the

absorption intensely. This was corroborated by another case of discission of a juvenile cataract.

The apparatus was of great value in chronic torpid catarrh of the conjunctiva, not in acute or subacute processes and not in maculae of the cornea. Steam has been repeatedly recommended in pannus after trachoma, but P. had no opportunity to verify this. Nor could he test the anodyne influence of steam in florid iritis. In none of his cases an injurious effect on the eye was observed.

P. summarizes his observations as follows: The action of escaping steam on the skin, lids, conjunctiva and cornea consists in alleviation of pain, anesthetizing, stimulation of metabolism of blood and lymph current, rise of temperature. It is recommended for neuralgia and rheumatic affections, inflammation of the skin, ciliary margins, lacrimal apparatus, acceleration of the course of abscesses, for skin culture by stimulating the activity of glands, advantageously combined with massage, for some cases of chronic conjunctivitis for preparing the conjunctiva for the absorption of astringents. P. thinks that so far too little attention has been paid to the application of steam in ophthalmology. C. Z.

The Effect of Atropin and Eserin on the Eye. Lange (*Wien. Med. Woch.*, Feb. 5, 1910).

Immediately after death, the eyes of a newly-born child were enucleated; one of them was placed in a warm 5% solution of atropin, and the other into a solution of eserin. Shortly afterwards the pupil of the first eye became dilated, that of the other narrowed. Later the eyes were hardened and examined under the microscope. The eye, treated with atropin, showed a dilated pupil, a thickening of the root of the iris, a narrowing of the angle of the anterior chamber, and a folding together of the ligamentum pectinatum. The eye, treated with eserin, on the other hand, showed the iris considerably thinner, the anterior chamber deeper and the empty spaces in the ligamentum pectinatum wider. These findings easily explain the bad effects of atropin and the good results of eserin in glaucoma. J. G.

Experimental and Clinical Observations With Scarlet Red in Affections of the Cornea.—Gords (*Wien. Med. Woch.*, April 2, 1910.)

B. Fischer was able to produce an increase of cells, the formation of giant cells, and young connective tissue by injecting scarlet red into the ear of a rabbit. He believes that there exists a special affinity between the epithelial cells and the coloring substance. The author experimented on animals and on human beings, and came to the conclusion, that by the use of this drug, the formation of scar tissue in affections of the cornea is hastened. It should be used only in clean deep ulcers of the cornea. In perforations of the drum membrane it hastens their closure. It has no antiseptic effect. J. G.

The Therapeutic Use of the Bier-Klapp Venous Congestion Method Upon the Eye.—Balaban, Theodor (*Wien. Med. Woch.*, Feb. 19, 1910).

After two years' experimentation with this method, the author came to the conclusion that it had very little influence on severe intra-ocular affections, such as iritis, iridocylitis, affections of the vitreus, choroidea or retina. It has an excellent influence on the inflammatory affections of the lids, such as hordeolum, furuncle, dacryocystitis, etc. Very good results were also obtained in severe seleritis and in the late stages of keratitis parenchymatosa. J. G.

Ophthalmoplegia Totalis Hysterica Cured by Psychotherapy. Bennett, Arthur G., Buffalo, N. Y. (*Opth. Record*, January, 1910).

Boy, aged 7, born in America of English parents, the father an epileptic of many years' standing, whose seizures are of the grand mal type. The mother is normal and healthy. There are several other children in the family, all more or less neurotic, but none up to the present time has developed epilepsy. Patient, a well nourished boy of about the average size for his age, was vaccinated on May 27, 1909. On June 10 the boy was seen for the first time. Both pupils dilated ad mixinum, and total paralysis of every muscle controlled by the third and sixth nerves of both eyes, with the exception of the movements of the upper lids, of which he had perfect control. There was total paralysis of accommodation and the eyes

were as immobile as if they were set in plaster. Vision in each eye was 6/12. Each fundus was perfectly healthy. A superficial general examination revealed the temperature 98.5 and heart sounds normal. The vaccination had been absolutely unsuccessful and the slight abrasion had healed completely. Bennet felt convinced that he had to deal with a case of psychic paralysis. The mother was instructed that after the boy was in bed and fast asleep she was to talk to him, and assure him that his eyes would be better in the morning, and to talk encouragingly to him during the day, and to continue in this way for five days, when she was to bring the boy again. This she did with the happiest results. The paralysis entirely disappeared, the pupils responded to light, the muscles recovered their full function, the accommodation became normal and the vision 6/6. G. I. H.

Tuberculin Treatment of Eye Affections. Hummelsheim, E. (*Arch. f. Aug.*, 66, p. 59). The conditions in tuberculin treatment are not so very simple. It aims at an active immunization of the diseased organism involving a number of factors which in their details cannot be sufficiently controlled. Therefore it is necessary to gain as much as possible extensive experiences by different methods. H. considered it indicated to make an attempt with very small, but clinically decidedly active, doses, which in no way disturb the general condition. This has been done by Saathoff, and H. tested it in two cases of bilateral disseminated chorioiditis and one of precipitating uveitis (serous iritis). After positive reaction to a probatory injection of old tuberculin (1 mgr). H. commenced 2 days later with 1/100 mgr. which in all 3 cases elicited a marked reaction at the puncture without rise of temperature. In 12 or 13 injections at intervals of 7 days he reached 1/10 mgr.; the temperature rose only exceptionally and not over 2/10 C. The chorioidal foci subsided with corresponding improvement of vision and the uveitis healed. H. confirms Saathoff's observation, that all 3 patients who were treated ambulatorily gained considerably in weight, and their subjective feeling was greatly improved. Whether the success was lasting remains to be seen, as the treatment was discontinued 4 and 5 weeks ago.

With regard to the choice of the tuberculin preparation Saathoff considers this irrelevant, since for none of them an antibacterial action has been proven, and that all depends on the correct dosis and the most favorable interval of time. Old tuberculin is cheaper, more durable and allows of a more exact dosage than emulsion and new tuberculin. H. claims that A. von Hippel in his publications erroneously spoke of new tuberculin instead of old tuberculin. He says that experience must prove the correctness of the equivalence of the 3 tuberculin preparations and the value of the above described method. H's purpose was to invite the collection of such experiences. C. Z.

Two Serious Cases of Blennorrhoea Adultorum, Cured with Lenicet.—Terlinck, H., Brussels (*Tydschr. v. Gen.*, October 3, 1908), was very satisfied with lenicet salve. The one case had a serious affection of the left cornea and slighter of the right eye; patient recovered without perforation with Vis. 1/15 and Vis. 2/3. The other case recovered with Vis.= 1, without any trouble remaining. E. E. B.

The Sero-Diagnosis of Syphilis. Wolff, L. K., Amsterdam. (*Tydschr. v. Gen.*, November 21, 1908) nearly always found a positive reaction in his non-treated syphilitics. He uses as antigen extract of a liver of a person who died from luetic meningitis. The patient's serum is obtained after puncture of the vein in the plica cubiti; in very young children and very fat people cupping was necessary. The blood must be centrifuged as quickly as possible, as then the quantity of amboceptor for sheep erythrocytes is the largest.

He examined 17 luetici without eye symptoms, of which 13 reacted positively; 3 of the 4 negative cases were patients who were treated for a long time with Hg. and had no symptoms at the time; the fourth was a case of cerebral lues. Two cases of dementia paralytica and 1 of taboparalyse gave pos. r., and 1 case of tabes with sole symptoms of Argyll Robertson and oculomotorius paralyse was negative. The reaction is of no value in early cases. In these last four cases cerebro-spinal fluid was used. For controle 11 persons were taken, who had no lues clinically, neither in the anamnesis neither in the status praesens; all reacted negative.

He then examined 70 eye patients, where lues could not be excluded entirely clinically; part of them were treated already last year and now cured; 27 cases had keratitis diffusa, 7 were combined with scleritis. These 20 cases of keratitis diffusa are distinguished clinically thus: 11 cases with congenital lues, and 3 with acquired lues as etiological factor, 1 of keratitis leprosa, 2 with tuberculosis as etiology, and 3 cases of keratitis disciformis; 8 of the 11 cases of congenital lues reacted pos. (= 73%); the 3 neg. had been treated long with Hg.; 2 of these were one year without symptoms. Two of the 3 with acquired syphilis reacted positive, the third had long been treated with Hg. and showed nearly no symptoms any more. Two cases which reacted positive had clinically symptoms of tuberculosis together with lues. The one was an 18-year-old girl with certain congenital syph., typical face and Hutchinson's teeth. The disease began in both as typical keratitis parenchym-luetica; it lasted long, and at a certain moment yellow infiltrates appeared in the angle of the ant. chamber: characteristic for tubercul. The second one showed round scars in the iris after clearing of the cornea, and the other developed in the second eye multiple knobs prominent over the iris surface. Iridectomy for synechiae posteriores in the first case produced material which demonstrated the diagnosis tubercul., as it was filld with typical giant cells.

Keratitis combined with scleritis is considered nearly always tuberculous. Of the 7 cases only 1 reacted pos. This case also made another clinical impression and healed much quicker than usually; clinically neither tuberc. neither lues was diagnosed; the treatment consisted in atropin and ac. salic.; in the anamnesis leus was not looked for carefully, so it must be left undetermined if patient had had lues.

Of the 8 clinically luetic iritides, 5 gave a positive reaction (62.5%); the 3 negative cases had already a long time recovered and had been treated for a long time for Hg. at the moment of venesection. Of the 18 other cases, partly with unknown etiology, one reacted positive (5.5%). This was a machinist with a lingering iritis: numerous synechiae and Descemet's precipitates and many small tortuous iris vessels, fibrine in the pupil. This and the little pain and photophobia pointed to tuberculosis. Pirquet's reaction, however, was negative; no other tuberculous symptoms, only chronic joint rheumatismus.

The eyes became quiet after inunctions and subconjunctival ClNa injections; then recurrence and tuberculin. Reaction in the beginning. Then condition remained stationary. This is a paradoxical case. One negative case was a congenital one; nothing pointed at lues, and the maternal blood serum gave a negative reaction.

Of 9 cases of affections of retina, chorioid and optic nerves, 3 reacted positive, 2 of which were certainly luetic; the third could be as well luetic as tuberculous. Of the 6 negative ones, 3 suffered from tuberculosis, of 3 the etiology was unknown (2 chorioiditis, 1 uveitis and 3 neuritis opt.); 2 cases with palsies reacted positive (abducens paralysis, complete oculo-motorius paralysis); 4 other ones reacted negative (2 with abduceons paralysis, 1 with paralysis of the convergence, which healed after correction of the ametropia, and 1 with trigeminus anaesthesia with ulcus neuroparalyticum). One case of cold abscess of the os zygom. reacted negative; its pus in a rabbit's eye produced tuberculosis iridis. Also negative was a case of hyalitis metastatica streptococcica. The blood for examination was taken after incision of a subcutaneous abscess. The negative reaction is important, although a very pronounced katabolism of albumen was present.

The results of the serum reaction are very conclusive. In only one case was the reaction positive, although the ocular inflammation was most probably tuberculous. We must therefore not make the diagnosis of lues only on account of this reaction. E. E. B.

## MISCELLANEOUS.

Teaching Ophthalmology. Baker. Albert Ruus. Cleveland, O. (*Lancet-Clinic,* May 14, 1910), emphasizes the need of better teaching of Ophthalmology in the medical schools. He deplores the fact that only fifty hours out of a total of 4,478 had recently been recommended by the Council of Medical Education of the A. M. A. for the teaching of this subject. He would have the freshman students taught the anatomy, histology and embryology of the eye, the sophomores well grounded in physiological optics. "They should be made familiar with accommodation and refraction, the numbering and properties of lenses; they should be taught to neutralize them; they should be required to use the ophthalmoscope and

retinoscope on the schematic eye. They should also be required to make tests for color perception, measure fields of vision with the perimeter, and should become familiar with the ophthalmometer, and, above all, they should be assigned to the dispensary in small classes." He divides junior and senior students into classes of five or six each and requires them to make practical use of the previous knowledge gained; to keep case records in the dispensary, to treat eye diseases, to make ophthalmoscopic and retinoscopic examinations and to use the trial case. Altogether he is able to give the students 116 hours' work. M. D. S.

The Valley of the Shadow of Death; the Significances of Mortality Statistics.—Gould, Geo. M. (*Amer. Med.*, July, 1910.) Among other polemic and phraseologic prosings the author has erupted the following:

"The final object of this writing is to re-emphasize two such facts—briefly, to be sure, because, for the present times, uselessly: 1. Unphysiological function of the visual organs produces morbidity of all the functions dependent upon seeing—in varying degrees, and as a rule—and there is hardly a function of the human body or mind that is not, directly or indirectly, more or less governed by vision. Either continuously, or at some period of life, every one has pathologic vision. 2. At least 85.5 per cent of all school-bred youth and adults have permanent and continuous pathologic function of the single support of the erect body-trunk, the spinal column—*i. e.*, they have either functional or grossly organic lateral curvature of the vertebral column. But functional diseases do not interest the pathologist, and this, the most gross of glaring organic deformities is not seen because the living nude human body is never examined.

"The causes of a hundred kinds of 'migraine,' the causes of epilepsy, of the 'despondency' and 'ill-health' of suicides, of insanity, of much homicide and other crimes, of senility, of a myriad of unnamed diseases—these and more, are confessedly and frankly unknown and unsought by professional 'leaders,' and by official and laboratory pathology. For much or for the most part these diseases will finally be recognized as due directly or indirectly to eye-strain and backstrain. These two diseases are the only ones in modern life (and they are

created by civilization itself), which demand the continuous innervation and contraction and strain of muscles and exhaustion of nerve-centers.

"It will at last be recognized that pathology has too long been deaf and blind to the most important of all pathogenic facts, facts repeatedly called to its attention, facts unseen yet glaringly before the eyes of every physician.

"And the end is not yet, for there is a mania of surgery. Innocent nerves are wrenched and torn out, kidneys peeled, 'decompression operations,' gastrotomies, nasal operations, etc., etc., ignorantly done, for diseases directly caused by eyestrain. Dr. Robert Morris finds abdominal surgery often unnecessary because the abdominal diseases may be cured by the capable oculist.

"For, as a rule, what is called senility is premature and unnecessary senility—an ophthalmological blunder, worked out in terms of actual illness and death." H. V. W.

## MUSCLES.

Congenital Defect of Abduction Associated With Extraction of the Eyeball: Report of a Case.—Brown, S. H., Philadelphia (*Ann. Ophthal.*, July, 1910). The symptoms of this condition seem to be so constant that they may be classed as a distinctive ocular syndrone. The author's case was seen by him, when she was eleven years of age. The defect had been observed a few days after birth. With the exception of a difficult labor the history was negative. There was evident paralysis of left external rectus, with slight inclination of head to right side. Turning of eyes to the right resulted in retraction of the eye and marked narrowing of the palpebral fissure; attempts at turning the eyes to the left resulted in halting of the eye at the middle of the fissure, which became wider, and slight rotation upward of the globe. The unaffected eye, which was now in adduction, was not attended by any shrinking of the globe or narrowing of the fissure. The condition of the eye in every other respect was normal and had normal vision with correction. With the eyes in the primary position she has binocular single vision with esophoria of 5°. M. B.

Hereditary Nystagmus.—Lans, L. J., Arnheim (*Tydschr. v. Gen.*, August 1, 1308) could trace nystagmus in one family for 5 generations. He shows the genealogical tree. Male as well as female members suffered. Sometimes one generation skipped. Not the sons exclusively, neither the daughters transfer the anomaly to their children. Lans could examine 4 generations; all suffered with horizontal nystagm, none had normal visus and more than one had at the same time shaking motions of the head. No similarity of the refraction anomaly existed, most of them were hypermetropic astigmatic. No consanguineous marriages existed, and neither the oldest, nor the youngest were always affected. E. E. B.

## OPERATIONS.

A Simplified Method of Enucleation.—Menacho, M., Barcelona. (*Klin. Mon. fur Aug.*, XLVIII., April, 1910, p. 460). The alterations of the technic proposed by M., aim, first, to render enucleation easier; second, to remove a large portion of the optic nerve for preventing relapses of neoplasms or propagation of sympathetic ophthalmia; third, for easier, and more complete, microscopic examination of the optic nerve. After peritomy the conjunctiva is detached as far as the equator and the internal and external recti cut, 10 mm. from their insertions. A thick silk suture is placed through both tendinous stumps and tied to a loop, which is given to an assistant for fixation. Thus the two other recti and the optic nerve can be cut better. If the eyeball is pulled forward by the thread the optic nerve can be cut at the optic foramen. The method insures greater guaranty for the success of the operation. C. Z.

On Fat Transplantation After Evisceration and Enucleation of the Eyeball.—Marx, G. (From the eye-clinic in the University of Strassburg. *Archiv. f. Aug.*, 66, p. 15). After a review of the literature on implantation of various substances in the empty scleral, or Tenon's, capsule, M. reports on the transplantation of fat into Tenon's capsule made in the clinic of Strassburg, at the instance of Bartels, and into the scleral cavity, according to Stargardt. After enucleation 3 sutures were placed into the conjunctiva but not

tied until a piece of fat from the thich was transplanted. Then the conjunctiva was sewed with fine silk. After evisceration the sutures were inserted through conjunctiva and sclera and carried out of the scleral wound, and vice versa on the opposite edge. In some cases the opposite recti muscles were united after enucleation, but without yielding better movable stumps. The fat remained in the wound cavity in all cases, it was never extruded. Although the oldest cases were only ¾ of a year old, in all an excellent, solid, well movable, and absolutely non-irritable, stump resulted. Older cases operated upon elsewhere according to the same method were also very satisfactory.

M. studied on rabbits the question what becames of the transplanted fat in the scleral sac, and reports his anatomical investigations: The reaction on the surrounding tissue was slight. After from about 10 to 14 days a connection between fat and sclera occurred by sprouting of blood vessels and young fibrillar tissue from the sclera into the implanted tissue. The connective tissue prefers the septa of the fat tissue. This is gradually destroyed and fat and necrotic tissue remain for a long time in the cavity, while invasion with connective tissue takes place. Thus the fat tissue behaves like a dead foreign body, and cannot be transplanted in a biological sense. The original stump shrinks as also shown by the clinical cases. But we have in transplantation of fat a means that gives an excellent stump for quite a time and especially in children prevents the retardation of growth of the orbit.

Transplantation of fat deserves preference before other methods as it is always on hand and requires no complicated preparations. Its shrinking is not so great as to be superseded by other methods. An extrusion never occurred, and a later prothesis never caused trouble, while patients after implantation of a solid sphere frequently complain of intolerable pain, if prothesis and sphere come into near contact. C. Z.

On Enucleation and Implantation of Fat. — Lauber. Hans. Wien (*Zeitschr. f. Aug.*, XXIII., May, 1910, p. 426). Heteroplasty may give good results, but it always involves the great danger of failure, as the implanted foreign bodies (metal, glass, asbestos, elder pith, etc.), may not be tolerated. Therefore the chances of autoplasty are much better.

In 1901 Barraquer devised the implantation of fat, which, probably on account of the inaccessibility of the Spanish American literature, has been practised only by Spanish-American surgeons, until Bartels, in 1908, introduced it in Germany. Since August, 1908, L. performed the operation at the first eye clinic at Wien, on 37 cases and reports on his results:

Enucleation is performed as usual, but each rectus muscle, like in tenotomy, is grasped with forceps and after its detachment from the sclera pierced by a double armed needle and the ends of the catgut fixated by a hemostatic forceps. After the enucleation is completed a sponge is pressed against the wound. Then a piece of subcutaneous fat tissue of the abdominal wall is excised large enough to fill the cavity of Tenon's capsule without causing too much tension. L. found it best to make a rectangular incision into the abdominal skin, one side of which runs in the linea alba. A careful hemostasis is necessary for preventing hematomas. The recti are united crosswise over the implanted piece, then Tenon's capsule with catgut and the conjunctiva with silk. The wound of the abdomen is also closed.

The after treatment lasts a little longer than after enucleation. Occasionally edema of the lids and conjunctiva occurs for several days. The conjunctival sutures are removed after from 8 to 10 days and, after from 2 to 3 weeks more, a prothesis is inserted.

There were only 4 failures: 1. After enucleation of an eye shrunken by chronic traumatic ididocyelitis the sutures cut through the brittle tissue on the fourth day, exposing the fat which became necrotic. The final result was the same as after enucleation without implantation. 2. After enucleation of a microphthalmus, in which the tension of the tissues was perhaps too great. In two other cases the sutures did not hold and the fat became necrotic.

After this method the prothesis has a much better position and motility. Within the first few months the implanted mass shrinks somewhat and becomes denser, most likely by being pervaded by connective tissue.

Encouraged by these favorable results L. intends also in exenteration to fill the empty scleral capsule with fat, as already successfully done by Velez and Lopez. Likewise in patients

who complain of sinking in of the prothesis the conjunctiva and Tenon's capsule might be incised, the ends of the recti taken up and, after the implantation of fat, united. C. Z.

Scopolamin-Morphin Narcosis in 100 Eye Operations.—Stuelp. (*Wien. Med. Woch.*, April 2, 1910.)

The result of this form of narcosis was good in 45%, fair in 26% and useless in 29%.

Still this method has great advantages over the inhalation method in cases where it is primarily efficacious, and in cases, where the effect is not good primarily, it acts quite favorably upon the succeeding narcosis with chloroform. J. G.

A Modification of the Scissors Operation for Slitting the Lower Canaliculus.—Charles, J. W., St Louis. (*Ann. Ophthal.*, July, 1910). This procedure is intended for the relief of stillicidum caused by closure of the punctum and beginning ectropion. A lacus lacrimalis is obtained by removing the hypertrophied conjunctiva down as close to the tarsus as possible on the temporal side of the punctum. This is accomplished by pressing the lid upward with the finger, so that the flattened blades of the scissors make a fairly deep bite. This method yields a triangular flap instead of a simple vertical incision. This flap is then snipped off, either by a vertical cut or by an incision, somewhat similar to the first one, leaving a depression, at the bottom of which is seen the canaliculus. The new punctum must be kept open by daily use of the probe until entirely covered with epithelium. In event of hypertrophy of the conjunctiva sufficient to cause ectropion, the lid is strapped up at its outer edge until it stays in place.

(The author does not make clear how his first incision is made to describe an angle.) M. B.

Operations for Entropion.—McLaren, George H. (*Canada Lancet*, May, 1910).

Entropion is either congenital, the result of organic change in the conjunctiva or tarsus, or may be due to spasm of the orbitularis. All forms may receive the same form of operative treatment if necessary. The spastic form is found mainly in old people with flabby lids, the condition being pronounced

in patients with a deep orbit and a small eye. The wearing of a bandage will induce the condition, which generally affects the lower lid, and the removal of this bandage will frequently reduce the condition.

A plastic operation, called by the author, "The skin and muscle operation," may be necessary to relieve the patient of his discomfort. Cicatricial entropion is generally due to trachoma and has varied symptoms. A modification of Snellen's operation by MacCallan, in which a horizontal segment of the tarsus with some of the muscle fibres of the upper lid, are removed, is strongly advocated. In the public Health Department of the Egyptian Government where entropion is recorded as most common, out of 2335 operations in 1906-1907, 80% were performed by this method. The "Reed method" of Egyptian quacks leaving a raw, granulating, lid surface, is a dangerous procedure. Entropion in the lower lid is more difficult to treat, due to its small tarsal plate; a combination of Hotz and Agnostaki's operations is deemed satisfactory. Should this not suffice an Arlt-Jaesche operation is recommended. F. T.

Sclerectomy in Glaucoma.—Maynard, Col., I. M. S., Calcutta (*Indian Medical Gazette*, July, 1910), contributes a short paper on this subject. After a brief historical note on glaucoma, trephining for it from the original operation of Argyle-Robertson in 1876 to the recent operations of Fergus and Elliot, he gives an account of the way he performs the trephining operation, which follows the accounts given by Fergus and Elliott with the following differences. Cyclodialysis is not performed, (as it is by Fergus) unless the trephine hole does not open the anterior chamber; von Hippel's trephine is used in preference to Bowman's or Fergus' as it cuts more cleanly and quickly, and the "stop" lying on the outer surface really acts as a stop, which the others do not; as soon as the iris bulges through the trephine hole it is snipped with scissors in a radiating direction, instead of being cut off. More aqueous escapes then from the posteror chamber, and the iris slides back. The advantages claimed for the operation are (1) complete and permanent reduction of tension; (2) retention of a round and but slightly altered pupil; (3) absence of hemorrhage into the anterior chamber; (4) simplicity of per-

formance, especially in cases where iridectomedialysis is likely to be difficult, *i. e.,* in congestive glaucoma. The risks are (1) button-holing of the conjunctival flap, (2) opening of Tenon's capsule (most unlikely), (3) forcing the trephine in too far and damaging the deep tissues. Quiet iritis, which is not very rare after the operation, is treated with atropine.

F. P. M.

Simple Trephining in the Operative Treatment of Glaucoma.—Elliott, Major, I. M. S., Madras, read a paper upon this before the South Indian branch of the B. M. A., which was published in the *Indian Medical Gazette,* (July, 1910). Elliott uses subconjunctival injections of cocaine and adrenaline for anesthesia, a hypodermic injection of morphia as well in unruly patients. The operation is performed as he has already described it in the *Ophthalmoscope.* The importance of reflecting the flap cleanly is emphasized, likewise taking care that the first application of the trephine (Bowman's 2 and 2.5 mm. sizes) suffices to bite into the sclera and make a clean ring into which the trephine is easily re-introduced. He presses rather more forcibly into the corneal than into the scleral edge of the trephine, so as to make sure of entering the anterior chamber as far forwards as possible. A useful method of sharpening Bowman's trephine is given. It was invented by Major Elliott's assistant, Mr. Craggs.. The central stem of the trephine is removed and inserted into the reverse or cutting end. By up and down movements the edge is then sharpened from within, care being taken to press on all sides.

The paper ends with a list of complications and other events of interest during the operation. Vitreous prolapse in 4.68 per cent. of the 128 operations summarized, attributed to placing the trephine opening too far back. In 5 cases the anterior chamber was not opened and a fine currette was pushed through the wound into it (cyclodialysis?). In 65 of the 128 an iridectomy was performed, *i. e.,* the protruding iris was cut off. McKeown's irrigator was found of use in washing back the iris when it prolapsed. Secondary trephining was called for owing to the tension failing to be lowered by the first operation in four eyes. Posterior synechicae formed in two cases during convalescence without pain or other sign of iritis. The visual results are given and are decidedly satisfactory.

F. P. M.

Operation for Synechia Anterior.—Straub, Amsterdam (*Tydschr. v. Gen.,* August 22, 1908) speaks in the Medical Society in Amsterdam, November 27, 1907, about the danger early or later of anter. synechia leading to higher tension. Perhaps that the process, which produced it, changed more in the angle of the anterior chamber, as we notice in the living eye; or the displacement of the iris changes the chamber lymphe and a stronger lymph current than in the normal eye results. If it should be possible to free the iris from the cornea, this would be preferable over an iridectomy—mostly opposite to the synechia. Schulek's method promotes the origin of synechia anterior. This can be prevented by making the in-and-out-opening in the limbus. It can be used for a broad synechia, the soc. leucoma adhaerens, where the place and extent of the growing together cannot be judged well. A von Graefe knife is only fit to cut in a direction about horizontal. For a more vertical incision this knife must be replaced by one with a shorter blade, which makes an angle of about 60° with the handle. Straub had such knives made by Moria in Paris. One needs two knives, being each others reflected image. He has also two similar knives with blunt point to cut away remnants. This principle is from Lang. Straub takes hold of the conjunctiva opposite to the place where he wants to make the wound; he thrusts Taylor's knife through the limbus opposite the middle of the synechia. The point of the knife is thrust near the cornea through the tissue, which connects iris and cornea, so that a button hole is made in the middle of the synechia. It is sometimes possible by turning the knife toward right and left to cut off the side parts of the synechia, but great care is necessary with a shallow anterior chamber. He therefore puts his blunt knives through the puncture opening, probes until the instrument passes into the buttonhole, pushes it then more forward and cuts off the rest of the synechia, the right bridge with the knife curved toward the right, the left bridge with the left curved knife. Is the scar so oblique that its middle cannot be reached easily, then one has to incise opposite the end of the scar, which is the nearest to the corneal margin. Then usually only one knife is enough. Artificial illumination is necessary. Straub considers that the improvements have made the operation of anterior synechia so easy and safe, that now a patient recovered with anterior synechia can be proposed

the excision of this contact, just as one now recommends a patient iridectomy after iritis, when he has recovered with an extensive posterior synechia. Sometimes a bride remains left, but as the iris remains in its plane this has no importance. As the anterior chamber fills quickly the wounds remain separated.

E. E. B.

## OPTICS.

The Mercury Vapor Lamp and Its Effect on the Eye. — (*Scientific American*, April 16, 1910). — It is stated that certain cases of alleged injury inflicted upon the eyes by rays of mercury vapor lamps, have been proven not to be due to the mercury vapor illumination lamp which is no so largely in use in this country and which is constructed with a tube or container of glass, but from a special lamp used in medical, sterilization, and chemical processes, having a quartz container. The medical or sterilizing lamp, to be sure, uses mercury vapor, but its container being of quartz, it is transparent to those rays which may be injurious to the eyes, while glass is opaque to such rays and does not permit their passage. A statement of Dr. Charles P. Steinmetz is quoted: "The mercury arc, therefore, is the only known artificial illuminant which is perfectly harmless, and thus especially suited for use where accurate work has to be done by artificial illumination, as in drafting rooms, offices, factories, etc." M. D. S.

The Quality of Light. — Balder, Paul F. (*Scientific American Supplement*, June 18, 1910). After considering several points on the intensity of daylight illumination, the writer says that by exhaustive observation it has been found that any color of light can be duplicated by combining in various quantities three of the primary or spectral colors, namely, red, green, and blue. The Ives colorimeter embodying this principle is described. Different factors entering into color variations are named. He says different eyes vary, some requiring more light of one quality than others. "Most people find themselves short-sighted for the light from the blue and violet ends of the spectrum. For the power of revealing fine detail with an accompanying ease of sight, the blue and green lights are to be preferred to the red for short distances. By looking through red, green and blue glass at the chart this point

can be easily observed. The red, on the other hand, is preferred by the majority of persons for revealing details at a greater distance. Keeping this principle in mind, it can readily be seen what an unsatisfactory effect would be produced if a red or blue-violet light were to be used for general illumination purposes. The important requirement for a light is then to be able to distinguish color values, fine detail, etc., with proper intensity and direction, whether it be daylight or artificial light."

The colors of thirteen investigated illuminants are listed.

M. D. S.

Protection of the Eyes Against the Injurious Effects of Short-Waved Rays of Light. Schanz, F., and Stockhausen, K., Dresden. (*Zeitschr. fur Aug.*, XXIII., May, 1910, p. 397), made investigations to ascertain to what part of the spectrum the ultraviolet rays belong which cause the different phenomena on the eye, and studied the absorbing power of different parts of the eye, enclosed between 2 quartz plates. They found that the blue and violet rays have a similar effect as the ultraviolet rays, as repeatedly emphasized by Birch-Hirschfeld, and that it is more correct to speak of the actions of short-waved rays of light on the eye. A synopsis of the effects of the rays of light on the eye is given in the following table: Visible rays: I. Red-green, of 760 to 490 millionths of a micromillimeter wavelength, reach the retina unchanged. II. Blue-violet, of 490 to 400. A small portion, which increases with advancing age, is absorbed by the lens and partly causes its fluorescence. Another portion causes fluorescence of the retina. A third portion reaches the light perceiving elements unchanged and is seen as blue and violet.

Invisible ultraviolet rays: III, of 400 to 375. A portion produces the fluorescence of the lens, another that of the retina. A third portion most likely strikes unaltered, the light perceiving elements of the retina. Whether the perception of lavender grey is due to a direct excitation of the light perceiving elements or a perception of the fluorescent light of the retina, cannot be decided.

IV. Of 375 to 320 participate only slightly in causing the fluorescence of the lens. They are intensely absorbed

by the lens and strike, only in youthful age, very much weakened the retina.

V. Of 320. Do not penetrate the cornea, chiefly produce inflammations of the external eye. The limit of absorption by glass lies at 300.

Then the question is discussed: Which phenomena of glaring are due to the action of the short-waved rays? The rays which are absorbed by the external parts of the eye must be held responsible for the injurious effects on the external tissues, the disagreeable sensations of glaring on these electric ophthalmia, snow blindness, and affections similar to spring catarrh.

The effect on the lens consists in changes of the capsular epithelium in producing cataract of glassblowers and perhaps senile cataract, as senile cataract most frequently commences in those portions of the lens which are most exposed to the short-waved rays.

The rays which cause fluorescence in the media of the eye abound in the daylight, and, as has been experimentally proven that the fluorescent light of the lens elicits considerable pupillary and lid closure reflexes, the fluorescent light of the lens and the retina must exert an intense irritation on the retina.

As the rays which produce fluorescence in the eye abound in the daylight, the authors investigated whether in glaring by daylight, an action of these rays is noticeable. If at a position of the sun from 20° to 30° above the horizon we look in the direction toward the sun, at objects toward the horizon, they appear as if covered by a veil. By shading the pupil with our hand so that no direct sunlight strikes the lens and retina, the veil disappears. The diffuse daylight which enters the pupils contains much less short-waved rays and cannot produce fluorescence sufficient to cause glaring even on a bright day. If the short-waved rays, which cause the fluorescence are eliminated from the direct sunlight, *e. g.* by a light euphos glass, the veil, in the above experiment, on the objects disappears more completely than by shading with the hand. The veil is produced by the short waved rays which create such intense fluorescence in lens and retina, that it becomes disturbing in bright daylight.

From these investigations follows that the short-waved rays chiefly cause the disturbance by glaring and that if light of

the various sources annoys the eyes it is due to the admixture of short-waved rays. To protect the eyes against the injurious effects of the short-waved rays the authors devised the euphos glass, which absorbs very intensely the short-waved rays and weakens the visible rays very little (about 5 % more than ordinary glass). It absorbs some of the visible blue-violet rays, hence its yellowish green color. It is adapted for illumination and protective glasses of different focuses. In balloon and mountain tours it gave full protection while those who wore dark spectacles acquired violent ophthalmia. If also the visible rays are to be diminished the greyeuphos glass is indicated, which comes in 5 shades. The euphos glass is manufactured by Gebr. Putzler, in Penzig in Schl., and euphos spectacles by Nitzsche and Gunther in Rathenow, in 2 shades as "Euphos-licht A," which weakens the ultraviolet rays considerably, and "Euphos-licht B," which absorbs them completely. "Euphos-licht A" is recommended for people exposed to direct sunlight, as automobilists, bicyclists, hunters, field-workers or persons sensitive to light. "Euphos-licht B" for water, snow, mountain, aeronautic sport, glass blowers, mydriasis, and after cataract operations. C. Z.

Finger Piece Mountings—Their Use and Adjustment. (*The Hardy Messenger,* Aug. 1, 1910).

Within the last few years there has been placed upon the market a new style of eyeglass mounting, the principles of which are radically different from those formerly in vogue. This new style almost immediately received public favor and has grown more and more popular as its utility and beauty have become known.

This mounting is fast superseding all other styles of lens mountings. It is known as a finger piece eyeglass and is so called because it may be removed or adjusted without touching the lenses. These mountings have many excellent features; they also have some bad ones. Among their good features may be noted a rigid bridge, or one that holds the lenses in perfect horizontal and vertical alignment, or in the same position as would a riding bow spectacle with a saddle bridge.

With such an eyeglass the axis of cylindrical lenses will be held correctly, or as nearly so as they would be if mounted in a spectacle.

The guards of these mountings are of various shapes. They are made to grip the nose by small springs which force them together or against the nose. The arms of the guards are pivoted to the bridge near the lenses; they project both forward and rearward. The forward ends are bent outward over the lens clamps and form finger pieces which may be gripped by the thumb and forefinger when the glasses are to be removed or adjusted. The guards are attached to the rearward extension of the arms. Some of them are attached rigidly and others loosely, or in such a manner as to allow them to rock. The former are known as rigid and the latter as rocking guards.

Those styles having rigid guards are susceptible of much greater adjustment than are those with rocking guards, yet both styles have both good and bad features.

(We are glad to note, however, that the manufacturers of both styles are gradually eliminating the bad features.) The rearward ends of the guard arms may be bent up for the purpose of lowering the lenses or down if it is desired to raise the lenses or to set them higher.

This makes the adjustment for height very easy and allows the lenses to be drilled at the center. The angle of the guards may be changed at will, also the spread at the top or bottom or at both top and bottom. The flare may also be quickly changed to any angle desired, so that the guards will lie flat upon a nose of any shape. As a rule the guards are made entirely of metal and are easily given any curve desired, either at their tops or bottoms, or both ends may be curved as desired. The bridges have different lengths and different heights, also different inclinations.

The dimensions of the bridges are practically the same as are those on riding bow spectacles. When one of these mountings is correcting adjusted the bridge will rest upon and have the same contour as the nose, thus doing away with the unsightly spring of the old style eyeglass. It was almost impossible to place the old style upon the nose twice alike, for if the guards did not rest upon the identical spot each time the lenses would not occupy the same position. They might have a greater or less pupillary distance, or they might not lie in the same horizontal or vertical plane or have the same inclination or height twice.

One great fault with the old style was the drooping of the lenses. This drooping was a vital error if the lenses contained a cylindrical element, for the axis of the cylinder was surely removed from its true position if the lenses drooped.

Practically all of the faulty features of the old style eyeglass have been eliminated in the new style. The bridge being rigid, the distance between the conters of the lenses is always maintained and they are always held in the same vertical and horizontal plane. The inclination may not always be exactly the same (this is not vital, however), but it is more nearly maintained in the new than it is in the old style. This is due to the fact that when the new style is being adjusted the bridge is made to rest upon the nose, and when the fingers are removed from the clips the guards fall upon the same parts of the nose every time. The optician, when fitting the old style, had to choose his guards from a score or more of different styles and his spring from dozens of different shapes and sizes, and his studs from many different lengths and styles, and then to assemble them and afterward to adjust them to the patient's nose. This selection of the most suitable material and the final adjustment requires not alone experience, but both experience and skill. For this reason many oculists have practically refused to prescribe eyeglasses in many cases. They could not be confident that certain lenses would prove satisfactory if mounted in an eyeglass. This fear of eyeglasses is wearing away and they are now prescribing the new style with confidence. The springs on these mountings have given the manufacturers more or less trouble, but evolution has been and is still going on and in time this new mounting will be worn almost universally except by the aged or infirm and by children. The beauty of the new style is universally admitted and there is no question, especially among the ladies, that the wearer of a modern rimless eyeglass looks many years younger than they would if they wore spectacles.

These mountings are adapted for all styles of lenses, particularly for the Peritoric styles and for bifocals.

Any P. D. may be obtained by prescribing a lens whose length plus the length of the bridge equals the pupillary distance. Short ovals and tories are popular shapes. H. V. W.

## OPTIC NERVE.

Optic Atrophy, Retinal Hemorrhages and Edema From Compression of the Thorax.—Stoewer, P., Wien. (*Klin. Monatsbl. fur Aug.,* XLVIII, 1, p. 559), reports such a case. The ocular changes after compression of the thorax are generally harmless, and intro-ocular affections like this case are exceptional. The hemorrhages were chiefly venous, apparently due to congestion, from the evacuation by the blood, by compression of the thorax, from the thorax chiefly into the jugular veins which in man have imperfect valves. C. Z.

Formation of Varices on the Optic Disc.—Fuchs, E., Wien. (*Zeitschr. fur Aug.,* XXIII, June, 1910, p. 504). A woman, aged 50, presented the typical picture of thrombosis of the lower main branch of the central vein, which emerged from the disc divided into 2 branches. These were broader than the upper ones and were surrounded by numerous streaky and round hemorrhages. In the next few months the veins grew stll larger and the hemorrhages increased, so that V. was reduced to 5/18. Then the hemorrhages commenced to disappear. On the temporal half of the disc there were 3 loops of veins wound like cork screws. In the following years the 2 temporal of these venous loops disappeared leaving the thick central loop on the bottom of the physiological excavation, V. 5/5.

In the same way F. explains the case of P. Knapp (*Zeitschrift fur Augenheilkunde,* April, 1910), reviewed in the July Number of Opth., 1910, as collateral circulation after thrombosis of a large retinal vein. C. Z.

A Case of Choked Disk and Amaurosis After Whooping Cough Cured by Trephining.—Nacht, Albert (From the eyeclinic of Prof. Froehlich, Berlin. *Klin. Monatsbl. f Aug.,* XLIII, I, p. 645). A girl, aged 7, suddenly became blind, while doing her lessons for school. The following day her parents brought her to an oculist, who advised immediate operation, which however was refused. The next day, the child was brought to the clinic. She presented the following

condition: Left pupil medium-sized, did not react to light. Optic disc hyperemic, edematous, its borders indistinct, veins congested, enlarged, tortuous, arteries narrow. Upwards and inwards of the disc was a streaky hemorrhage. The swelling of disc was —3 D. R. eye presented the same aspect, but there was no hemorrhage. The pupil reacted very sluggishly to light. L. absolute blindness. R. perception of light directly before the eye, with faulty projection.

The patient had had rachitis, scarlet fever and measles. Six weeks ago she fell sick with whooping cough, and had the last attack in the night before she became blind. As the parents objected to an operation, the pale anemic child was for one day treated with diaphoresis. The swelling of the disc increased and the hemorrhage became larger.

On the fourth day after the onset of amaurosis the operation was performed after a lumbar puncture had evacuated not one drop of crebro-spinal fluid. The left frontal bone was trephined and the dural sac opened, which showed no greater accumulation of fluid. Puncture of the left lateral ventricle without result. On the whole, about 10.00 sero-sanguinolent fluid oozed. The skin was firmly sewed. The first dressing was soaked, but from the 3rd day all secretion ceased. On the 3rd day a decided improvement was noticed, which progressed daily so that after 2 weeks V. R. = 1; V. L. = ¼, both discs and surrounding portions of the retina perfectly normal.

N. could not find another case in literature. He explains the choked disc in the following way: "Through the coughing paroxysms a transient compression and obstruction of the bloodvessels and lymphatics of the head is produced. This venous stasis occasionally causes slight subconjunctival hemorrhages, frequently edema of the lids, more serious hemorrhages into the anterior chamber and retina and all parts of the brain. If often repeated it may lead to a transudation into the ventricles, which may impede the outflow from the vitreous in the perivascular lymphatic spaces of the central vessels to the intervaginal space of the optic nerve. This obstruction of the outflow creates congestion, edema of the disc and secondary venous stasis. The venous stasis in the central vein may also primarily be caused by interference with the blood current in the ophthalmic vein, which is not relieved by the anastomosis of the central vein with the facial vein, this being also con-

gested. The prompt cure by operation was a proof of the resisting power of the optic fibers and excludes the assumption of an inflammatory or toxic etiology.

In his summary N. says that if in choked disc, most likely from suddenly increased congestion and compression of the optic fibers, amaurosis sets in, the prognosis (perhaps especially in young individuals) of immediate trephining is good. Any procrastination entails more or less intense atrophy of the optic nerve with corresponding functional lesion. Thus the diagnosis absolute amaurosis is not identical with incurable blindness. C. Z.

## ORBIT.

Contribution to the Knowledge of Metastatic Orbital Abscess and the Visual Disturbances Associated With It. —Wirths, M. (From the eyeclinic of Prof. E. Krückmann in the University of Koenigsberg. *Zeitschr. f. Aug.,* XXIII, June, 1910, p. 506). In a girl, aged 14, a panaritium was followed by a metastatic orbital abscess and staphylococcus pyogenes aureus found in pure cultures from both places. Before the operation the diagnosis could not be made with certainty, as the cardinal symptoms of orbital abscess: redness, swelling of upper lid, chemosis and increased temperature, were lacking, excepting the (not determining) exophthalmus. At the acme V. was considerably reduced with a relative, later absolute, central scotoma, and the ophthalmoscopic aspect of complete arterial obstruction. An anatomical examination not being possible, a compression of the central artery at its entrance into the optic nerve was most likely, or a compression of its branches within the globe in consequence of increased introocular tension produced by the orbital pressure. The case showed, that, if in the course of orbital phlegmon the aspect of intense restriction of the arterial blood supply occurs, not only the circulation may be restored after evacuation of the pus, but also the function, if the impoverished nutrition of the retina did not last too long. C. Z.

## PATHOLOGY.

Abnormal Pupillary Reactions.—Marx, E., Amsterdam (*Tydschr. v. Gen.*, December 12, 1908), observed the following 2 cases in the Leiden clinic. (1). A boy fell one hour before

on a pointed twig. The vision of the left eye was zero, of the right eye 10/x. In the left upper lid at the nasal side a 1 cm. wound presented. Both lids swollen through haematoma. Ocular movements in all directions much impaired; the pupil wide and did not react on light but contracted promptly consensually, while the right pupil did not contract consensually. In the fundus only somewhat darker veins, narrow arteries and a dark patch in the macula. Diagnosis of laceration of the optic nerve behind the entrance of the central vessels. Eight days later patient began to see again: he could count fingers at 3 m. temporally, no pupillary reaction visible. Vision increased gradually and 11 days after the accident a slight narrowing of the left pupil was noticed on incident light. With the increase of the vision the pupillary reaction augmented and 2 months after the accident vision was 1, 5/x and the pupillary reaction directly and consensually the same as in the other eye. The field was somewhat smaller downward, the movements nearly normal, only slightly less downward. The right pupilla had become slowly somewhat hyperemic, while the vision remained the same. In this case the left pupillary reaction was still entirely absent, while the vision in that eye had returned already for about a week. (2.) Patient came to the clinic to ask if the glass she used for reading with the left eye was still good. She could not see more with the right eye since about 10 years and she had twice undergone an operation on that eye. The left eye had compound astigmatism and after correction V. = 8/x. The right eye did not perceive the strongest day or artificial light. Its anterior chamber was deeper, a ripe senile cataract with some iridodonesis was present. The right pupil was somewhat narrower than the left one, reacted consensually normally, while the left pupil reacted directly normally and consensually only very little.

Here we had a blind eye, which showed a pupillary reaction. Probably two kinds of nerve fibres are found in the optic nerve: fine ones for conduction of the light and thicker ones for the reflectoric pupillary movements.

In the first case a hemorrhage probably had formed around the optic nerve and in its sheath behind the place of entrance of the central vessels. Resorption of the extravasation slowly relieved the pressure on the nerve. This explains the gradual return of the vision and the first light perception in the peri

phery. The then absence of the pupillary reaction is explained, when we accept with von Michel that the pupillary fibers are connected with the papillo-macular bundle. Both these bundles remained still under strong pressure, while this pressure was removed for the light conducting fibres of the periphery. When the central vision had somewhat returned pupillary reaction could be induced from every part of the retina.

The beginning of the narrowing in the second case needed on the average 1,8 sec. (normal 0,6 sec.) and the maximal contraction happened 7,8 sec. after the illumination began (normal 0,9 sec.); this contraction went slowly and regularly without the physiologic intermissions. The centrifugal and centripetal fibers were not intact. The last was shown by the very slow contraction of the spincter on direct illumination, while the consensual reaction was good and prompt, the first because anisocoria exists and the right pupil is narrower than the left one. The peculiar slow reaction points at some break between the centripetal and centrifugal fibers. E. E. B.

Pigmentatio Papillae Nervi Optici.—Lechner, C. S. (*Tydschr. v. Gen.*, Sept. 5, 1908) distinguishes the pigmentation of the disc due to some diseased condition of the eye and pigment in eyes, which are to be considered normal in all respects. The first condition is preceded by hemorrhage, the visus is mostly much reduced and serious changes can be seen on the disc.

When pigment is found in the disc in a normal eye, we may conclude only with probability of the congenital origin; it could be perfectly possible that if such pigment was examined microscopically or chemically, it would appear to derive from the blood. Normally some pigmented connective tissue cells are found in the connective tissue of the lamina cribrosa, especially in strongly pigmented people. Pigment, which is found sometimes in the disc in the normal eye may be considered then as a hypertrophy of these cells or as aberrant germs of the chorioidal pigment. (Ogawa). Although the literature makes hardly mention of this condition the phenomenon is frequent enough, as shows systematical examination of all fundi. So Lechner found 4 cases during the last year in the Leiden ophthalmological clinic. Twice a small streak of pigment, once a little patch of the size of a pinhead were found

within the disc not far from the margin in absolutely normal eyes. The pigment in the 4th case lies 1-3 without and 2-3 within the margin and about in the niveau of the disc. For this 4th case the probability of a haematogenous origin must be kept in mind. E. E. B.

## PHYSIOLOGY.

On a Noteworthy Phenomenon of Ocular Movements. —Lohmann, W. (From the eyeclinic of Prof. O. Eversbusch in the University of Muenchen. *Klin. Monatsbl. f. Aug.*, XLVIII, I, p. 556), frequently found in suitable cases, but very marked in the 2 reported, an adjusting movement to normal position of the blind eye, which ordinarily deviated upwards and outwards with slight rotation of the cornea, if the healthy eye was shaded by the hand as if tested for consensual pupillary reaction. This phenomenon of concomitant movement may perhaps be understood from the fact that the motor root of the ciliary ganglion arises from the branch of the inferior oblique. The consensual excitation goes to the iris of the deviating eye but, on account of the terminal changes in the iris, cannot elicit a movement of the iris, and jumps in the peripheral fibers to those of the inferior oblique, but at once subsides by shading the other eye. L. thinks that his cases furnish an interesting contribution to the fact that divergent squint may have the most different causes. In his case it may be attributed to checking of the reflex of consensual contraction of the pupil and a resulting concomitant movement of the eye. C. Z.

Clinical Observations on the Free Communication of the Anterior and Posterior Chambers of the Eye. Winselman (*Wien. Med. Woch.*, Feb. 5, 1910).

According to Leber the aqueous humor is produced by the ciliary process, and not by the iris. Hamburger, on the other hand, is of the opinion, that a fluid which originates in the posterior chamber at the ciliary process cannot pass the pupil. The aqueous humor, in the anterior chamber, which changes every half hour, must therefore be produced by the iris. As a proof of this statement he cites the following case: A laborer was hit on the eye with a blunt instrument; 5 hours later a mydriatic was instilled; 10 minutes later, the pupil began to

dilate in the upper part, and at the same time a drop of blood made its appearance, and sank downward; soon thereafter another drop appeared. Five minutes later, the pupil became dilated on the other side, and now, the whole aqueous humor became bloody. According to the author, the bleeding, in the vitreus induced by the trauma 5 hours before, was retained in the posterior chamber up to the time that the pupil became dilated, and then a free communication was established between the anterior and posterior chambers of the eye. J. G.

First Sight at the Age of Forty.—Ayers, Edward A., New York, N. Y. (*Harper's Magazine,* August, 1910), presents several theories relating to the connection of the visual sense with other senses, based on the observation made on the case of an intelligent farmer successfully operated on for cataract at the age of forty. His remarkable ability to recognize color when blind is thought by the writer to have been due to nerve sensations which reached and acted upon his visual center. Sexeral humorous incidents in the particular case are related and many theories and observations as to color, light, vision and sound are reviewed. M. D. S.

Experiments on the Growing Eye. Wessely (*Wien. Med. Woch.,* Feb. 5, 1912).

Operations performed on the eyes of newly-born rabbits gave the following results:

1. After an iridectomy, the growth of the eye was very much retarded. This, the author says, is due to a diminution in the tension even in a normal eye, produced by the iridectomy.

2. While performing an iridectomy on a newly-born rabbit, if the zonula is injured, a half moon-shaped coloboma of the lens is developed, during the growth of the eye.

3. If a traumatic cataract is produced by injuring the lens of a newly-born rabbit, in a few months the lens regains its transparency.

4. The regenerated lens always remains smaller than the normal one; the eyeball itself also remains smaller, and we get a microphthalmos. The size of the eye seems to depend largely upon the size of the lens.

5. If the lens is freely incised, it becomes much smaller, and causes the formation, which as in a child produces a lupli

thalmos. A slight iridectomy on such eye stops its further growth.

6. If the musculi recti on the eyeball of a newly-born rabbit are severed, the axis of that eye becomes larger, than that of the other eye, and the eye becoms myopic. Severing of the superior and inferior rectus produced astigmatism of the cornea with an increased curvature of the vertical meridian. J. G.

## REFRACTION AND ACCOMMODATION.

Spasm of Accommodation and Nystagmus of Miners. - Ohm, J., Bottrop i. W. (*Klin. Monatsbl. f. Aug.* XLVIII, I, p. 608), reports the 3 most marked, out of the cases of miners' nystagmus, combined with spasm of accomodation he has seen. The nystagmus was more intense in looking upwards.

In the first case, a man aged 17, who had not worked as a hewer, which shows that other causes, besides hewing must play an etiological factor, there was hypermetropia + 1.50 and spasm of accommodation of over + 5.00. Atropin and comparatively short rest cured all symptoms, which remained cured for the last 7 months.

In the 2nd patient the spasm of accommodation subsided under atropin, but not the other affections.

O. concludes that the visual disturbances of which miners are suffering must be attributed, besides the apparent movements elicited by the oscillations of the eye, to the indistinctness of the objects due to spasm of accommodation. C. Z.

Refraction-Anomalies and Trachoma in West Indian Schoolchildren. -Van Trotsenburg, J. A., Groningen (*Tydschr. v. Gen.*, April 18, 1908) examined 1500 pupils of 11 different schools; if the vision could not be brought up to 6/v ophthalmoscopic examination was done. The average age for the lowest class is between 8 and 10, 7 years; the oldest were 17 years. The education of the large majority is finished before that age. Two schools made exception, with the youngest ones were 7 and 7.4 years.

He rarely found astigmatism among the poor negroes, British Indians and creoles of mixed breed. The myopic-astigmatism was found much more frequently than the hypermetropic. The frequency of myopia increases with age. This myopic influence

does not spare the astigmatic eyes; they are rather more apt to become myopic than emmetropic eyes. Therefore a part of the originally hyperm.-astigm. eyes becomes during the school years mixed-astigmatic and later myopic-astigm. The number of astigmatici under the well-to-do increases with age.

As in the literature, especially the inverse astigmatism is supposed to originate during the development of the myopia. v. T. ordered the astigmatici in 3 groups according to the maximum of refraction, neglecting small deviations from the vertical or horizontal. He found 75 eyes with vertical maximum, 54 with horizontal and 24 with oblique, which demonstrates the inverse astigmatism much more frequent, as one expected, in children betwen 6 and 18 years according to earlier investigations. If however, all cases below 2 D. are eliminated, 6 or 20% eyes with inverse astigmatism are found, which number agrees with those of Faehndrich and of Van Dyk.

Comparing the population of Suriname and Curacoa, astigmatism is found in Curacao procentualiter about twice as much. This is perhaps explained by the fact that pure creoles are found much more frequent under the well-to-do Curacao pupils than under the surinamians. Intermarriages may perhaps rapidly increase a hereditary abnormality like astigmatism. Myopia is pretty frequent in the West-Indies, but the increase with age is less among the poor as among the well-to-do. Both groups begin with nearly the same percentage (6.51 and 6.15: age 6-10); age 10-14, 14, 72% and 7, 98%; age 14-18 23.01% and 8.98%. This makes it probable, that the school is only of minor importance for the poor, but that the chief cause must be looked for in the frequent trachoma. Myopia was found twice as much among the trachomatous as among the other pupils. Aong the poor also conjunctivitis neonatorum is frequently found, which undoubtedly will harm many eyes.

Among 101 well-to-do myopic pupils were found 25 astigmatici (25%), among the other 576, 68 astigmatici (good 12%), which shows that astigmatism is found among the myopici about twice as frequent as among the children with other refraction. Probably a part of the myopia among the well to-do is caused by the school. The number of myopes in Suriname and Curacao is about the same in the lowest grade, while in the highest the number in Curacao is twice that of Suriname, procentualiter. For the poor in both colonies this percentage

was about the same. (Sur. with 7.89% — Cur. with 7.36%). Valuable in the struggle against the myopia will be here an early treatment of trachoma and correction of all those refraction disturbances which injure the visual acuity at the beginning of school life. Myopia was found under the well-to-do boys in 17, 12%, under the girls in 15, 87%; the boys are taught somewhat longer and perhaps somewhat more intense, and the trachome percentage was 13 as against 7 among the girls, with no important difference of astigmatism. Among the poor 6.75% of the boys were found myopic as against 8.97% among the girls; 27% boys were trachomatous, 20% girls. The making of "Saba lace" or "Spanish needle work" has probably a great influence.

Trachoma in all its forms was found; the subjective symptoms were mostly little and the sufferers did not know of its existence. Scartissue and consecutive deformities of the lids are rare. Trachoma was found among all races, classes and ages; the most frequent among the least hygienically living negroes and creoles.

In Suriname trachoma was found during the age 6-10 among the well-to-do 20.69%, among the poor in 46%; at the age 10-14 in 10.56%, resp. 37.88%, at the age 14-18, 6.67%, resp. 17.65%. In Curacao in the firsa group, 9.29% resp. 23.79%, in the second, 10.92% resp. 21.20%, in the third 14.44% resp. 28.85%. In Suriname trachoma is treated in the school, not in Curacao. One school in Suriname was visited with nearly only negro population, all belonging to one religious sect and living in one district. The trachoma frequency was here very large. The older family members were visited in their homes and their eyes inspected without turning the upper lids. Of 80 people above the school years, 25 had inflamed eyes. Pannus, corneal ulcers and maculae were found nearly only in old people with vision zero. Of 60 children under the school years, 24 had inflamed eyes, some had a purulent inflammation, others a subacute or chronic one. E. E. B.

## RETINA.

A Case of Retinitis Proliferans with Pigmentation, Following Hemorrhage from the Bowel. - Ellett, E. C., Memphis, Tenn. (*Oph. Record*, January, 1910). The patient,

37 years old, a man of convivial habits, was greatly troubled with symptoms of indigestion. Two or three years before he had passed a kidney stone. At the time of his visit he reported a recent hemorrhage from the bowels amounting to a teacup full. The vision of his left eye was blurred. R. 20/xxx — .75, ax. 180 = 20 xx and J. L. 20 lx unimproved, J. S. No cause could be seen with the ophthalmoscope for the obscured vision. In May, 1903, vision O. S. 20 c, — 1.00 = — .50 ax. 180 = 20 xxx M, best to the temporal side. At that time a whitish area, like exudation, was seen all around the disk, and at a little distance from it. This area was striated in the retina, covered some of the retinal vessels and was not pigmented. Nerve and blood vessels normal. In Nov., 1907, the vision O. S. was perception of moving objects. In Feb., 1909, he began to suffer from uremic symptoms, the urinalysis then showing evidences of an acute exacerbation of a chronic interstitial nephritis. In August, 1909, the patient died in a uremic convulsion. In this case we had a general hemorrhage or hemorrhages, followed by edema, and then hemorrhages of the retina, not coming on for some weeks. As a result of this hemorrhage a degeneration of the retinal ganglion cells followed, that in time leading to atrophy of the retina and optic nerve. As features of the atrophy of the retina we note liberation of retinal pigment with massing of it in the intercellular spaces and vessel walls in the degenerated area. The irritation of the retinal hemorrhages produced a proliferation of the retinal connective tissue elements. In the eye ground the pallor of the nerve and wasting of the vessels can be seen, while the accumulation of retinal pigment in a ring shape around the disk marks the extent to which the retinal epithelium is preserved. Outside this ring the choroidal circulation is made visible by the removal of the pigment layer of the retina.

G. I. H.

## SINUSES.

A Case of Monocular Hemianopsia Due to Ethmosphenoidal Disease. Krauss Frederick. Philadelphia, Pa. (*Ophth. Record*, January, 1910). That a local toxaemia is present rather than an inflammation in the ordinary sense seems to be proven by: 1st. The comparatively slight changes

in the optic disc and fundus as seen with the ophthalmoscope. 2d. The great rapidity with which the nerve recovers its functions after the toxins are directed away from the nerve by opening the offending sinuses. 3d. Relapses occur as soon as there is a blocking of the toxine or pus. 4th. Optic atrophy will result when the toxaemia has acted for a prolonged time. In the case reported there was a chronic sinusitis for many years, which has lately caused depression of spirits and intense headaches. Removal of turbinate body of the ethmoid bone, and the opening of most of the ethmoidal cells gave great relief and improvement. Purulent discharge continued freely from the frontal and ethmoidal cells of the left side, while those of the right side secreted to a lesser degree. Four months later the patient became conscious of a relative central scotoma in the right eye and on the apparently less affected side. This was transient. It recurred with great intensity six weeks later and rapidly extended until the upper half of the field of the right eye was affected. The scotoma was absolute for red and white. G. I. H.

## SYMPATHETIC OPHTHALMITIS.

On the Treatment of Sympathetic Ophthalmitis with Large Doses of Salicylate of Sodium or Aspirin. Gifford, H., Omaha, Nebr. (*Klin Monätsbl. f. Aug.*, XLVIII, I, p. 588), recommended in 1899 large doses of salicylate, *i. e.*, 1.00 salicylate of sodium for each 6.5 kilogram body weight, which are 10.00 for an adult, and if necessary 15.00. In idiosyncrasies these doses can be given for from 3 to 6 days, provided that the patient stays in bed. According to the severeness of the case the remedy is left off every 6th or 7th day. 2.00 are given 5 times a day in half a glass of water and 2 teaspoonfuls of brandy. If the stomach should not tolerate it, it may be given by rectum, 4.00 in a glass of warm water from 2 to 3 times. After all inflammatory symptoms have subsided, it is left off every 3rd day, for from 2 to 4 days. More as a change for the patient the salicylate of sodium may be substituted by another salicylate or aspirin. G. always from the start uses in addition atropin and energetic inunctions, sometimes injections of atoxyl or arsenic in another form.

The results were: 2 bad ones, in which the treatment commenced too late, respectively was not well tolerated, 1 medium, 1 good, 12 very good ones. The cases generally came within a week from the beginning. The exciting eye was at once enucleated in all but one. One patient, who remained well for 18 months, developed glaucoma. The various operations seemed to resuscitate the sympathetic opthalmia and the eye was lost by an insidious inflammation; 11 out of 16 healed with V 6/ix or better; 3 had 6/vii; 3 had 6/vi; (one 6/vi —; four 6|vi +), one 6/xv, one 2/cc. G. emphasizes as the chief point, that in each case of sympathetic ophthalmia, be it ever so light, large doses of salicylate of sodium should be given at once, in connection with atropin and mercury. C. Z.

## TOXICOLOGY.

Blindness from Phenylarsinates from the Arsenic Treatment of Syphilis and Allied Disorders.—Taussig. A. E., St. Louis (*Interstate Med. Journ.*, Aug., 1910).

"Nevertheless, the utility of these phenylarsinates would be beyond dispute, were it not for the fact that occasionally partial or complete blindness follows their use.

For a detailed account of a remarkable series of cases of amblyopia and blindness, following the use of atoxyl and arsacetin, reference should be made to the *Bulletin of the Sleeping Sickness Bureau* (No. 8, 1909). In this, Professor Max Beck notes that Watermann treated four cases of tabetic optic atrophy with atoxyl and in each case the vision became markedly worse. He also describes 23 cases of complete and 7 cases of partial blindness out of 1,633 patients treated with atoxyl at Sesse by the members of Koch's expedition. Two series of cases treated by Gray with atoxyl are also recorded. In the first 1,135 cases, 47 had alterations of vision and 20 became totally blind. In the second series of 1,712 cases, 70 had dimness of vision and 10 became totally blind; in 2 of the latter, mercury was given with atoxyl. Dr. Paderstein has published 12 cases treated with atoxyl and 2 with arsacetin, all followed by amblyopia varying in severity from actual blindness to marked contraction of the field of vision. Paderstein's patients were Europeans; those of Beck and Gray were natives of Uganda.

Ruete, Iversen, Paderstein, Hammes and others report optic atrophy following the use of arsacetin.

On the other hand many others have employed the phenylarsinate salts without any ill effects and with conspicuous advantage. In the same article from which the above is quoted, Major Ward is reported to have given 18,000 grains of soamin (a slightly modified atoxyl) to more than 100 syphilitic patients during the last two years without any ill-effects. Col. Lambkin, a zealous worker in this field, has treated 308 cases with phenylarsinates without any bad effect. During 1909, he gave over 2,000 intramuscular injections of soamin and arsacetin with no ill consequence and he attributes the toxic symptoms, that have been described, to the liability to decomposition that occurs when these salts are kept in solution. Beck, however, regards the eye symptoms as due to chronic poisoning dependent on idiosyncracy, as many patients receiving larger quantities of similarly prepared phenylarsinates escape eye symptoms." H. V. W.

Methyl Alcohol Amblyopia.—Clinical Records and Historical Study.—Gruening, E., New York (*Arch. Ophthal.*, July, 1910, XXXIX, 333), reports two cases of methyl alcohol amblyopia, which differ from the recognized type of this disease, and refers to the published literature of other writers on this subject.

In the first case blindness was the result of drinking a large quantity of wine. Both optic disks showed excavations absolutely resembling those of glaucoma without tension. In the right optic nerve there was a hemorrhage on the floor of the excavated disk.

In the second case blindness was the result of drinking whiskey, an analysis of which showed from 24 to 43% of methyl alcohol. In this case there was probably chronic methyl alcohol poisoning with an acute exacerbation. Ophthalmoscopic examination showed optic nerves white, with veiled edges, and sheathes of connective tissue surrounding the veins and arteries.

The article is illustrated. W. R. M.

## TRACHOMA.

The Pathogenic Element of Trachoma. Addario, Dr., Palermo, Translated by Dr. M. L. Foster, from the German Edition, September, 1909 (*Arch. Ophthal.*, July, 1910, XXXIX, 374), has attempted to ascertain the peculiarities of Prowazek's bodies and to differentiate them from the little bodies often found in the protoplasm of the epithelial cells of the normal conjunctiva and in common conjunctivitis. He studied five cases of typical acute trachoma with distinct follicle formation, and found Prowazek's bodies, in all cases, in the cell protoplasm of the conjunctival epithelium, one or two in each preparation riche in epithelial cells. He also studied various cases of the mixed and follicular forms and found the bodies which were similar in form, size, stain, appearance, and contents, to those found in acute trachoma.

In order to differentiate the little bodies from those described by Bertarelli, Cechetto and Mijaschita in the epithelium in ordinary conjunctivitis, the author studied three cases of diplococcus conjunctivitis, two cases of conjunctival catarrh bacteriologically negative, and two cases of ophthalmia neonatorum. The same technic was used and observations made under the same conditions. In the preparations from the diplococcus conjunctivitis he found a number of small bodies which presented the same appearance and took the same stain as those found in trachoma. In both cases of blennorrhoea conjunctivitis he found little bodies similar to those in the diplococcus conjunctivitis. In the two cases of subacute conjunctival catarrh, he also found the usual little bodies embedded in the protoplasm of the conjunctival epithelium. The author then examined the normal conjunctiva in order to determine whether similar bodies were present and his observations showed that the granular little bodies in the protoplasm of the conjunctival epithelium are a normal condition and are of no pathogenic value either in trachoma or in other forms of conjunctivitis in which they may be found. The author adds "that for the positive recognition of the forms described by Prowazek one must be familiar with all the different changes which can be produced in the epithelial cells of the conjunctiva during the preparation."

The author has also investigated the subject of the presence of blastomycetae in trachoma and in a study of 7 cases of the

form of corneal trachoma known as *pannus crassus* he has demonstrated the presence of encapsulated blastomycetae.

He proposes to continue these studies and make further attempts at culture.

The article is illustrated. W. R. M.

Demonstration of the Trachoma Bodies. McKee, S. H. (*Montreal Med. Jour.*, March, 1910).

The article is prefaced by a short review of the work of Halbersteder and Prowazek in their investigations on this subject. The writer states that in the opinion of Prowazek, these bodies are parasitic, and that the term chlamydozo has been applied to them. Halbersteder and Prowazek have demonstrated the contagious nature of trachoma by inoculating orang-outangs.

In many instances plastin cells situated close to the nucleus of the epithelial cell has been a ground for sqepticism. McKee states that Fuchs regards the bodies of diagnostic import, having demonstrated them in large numbers of old as well as of fresh cases. Addario considers them as artefacts composed of sedimented staining material, mixed with degenerated cells. Lodato is stated to have found them in spring catarrh.

McKee states that an examination of several cases of other forms of conjunctivitis failed to reveal the bodies. He states that he made his observations upon selected material and one infers that acute cases only were tried. The bodies were demonstrated in five out of the six cases which he examined. After selecting a proper case the palpebral conjunctiva is scraped with a dull scalpel, and smeared upon a glass slide. The slide is dried in air, fixed in absolute alcohol for ten minutes, stained for twenty minutes in Giemsa stain, to one drop of which fifteen of distilled water is added. He agrees with the recognized authorities regarding the shape, size, and position of the bodies, describing them as round, smaller than cocci, and situated within the cell protoplasm, close to the cell nucleus in some cases. These bodies are sometimes surrounded by a halo or mantle. Wolbach demonstrated the bodies in sections from material removed from the palpebral conjunctiva. F. T.

Investigations on the So Called Trachoma Corpuscles. Flemming, Dr. (From the eyeclinic of Prof. R. Greeff in the University of Berlin. *Arch. f. Aug.* 66, p. 63). The ques-

tion as to the morbid agent of trachoma received a new phase by the observation of trachoma corpuscles in 4 cases of gonorrhoic conjunctivitis of the new-born by Heymann. At the instance of Prof. Greeff, and frequently controlled by Claasen, the author reinvestigated the subject on over 300 researches and over 2000 preparations made within the last 9 months on his travels to Posen, Zuin, Hungary and at the clinic of Prof. Greeff, with the following results:

Peculiar well characterized formations are found in the epithelia of the conjunctiva in trachoma, more frequently in blennorrhoea, gonorrhoea and others, of the new-born, and in a case of gonorrhoic conjunctivitis in an adult, which do not differ with the various diseases. They can be demonstrated with all known methods of staining or india ink. They can be inoculated on man and monkeys, and occur in increasing quantities from after 7 to 9 days. They are found only in pathologically changed epithelial cells, frequently with other known morbid agents of conjunctivitis. They react differently to specific treatment in trachoma and blennorrhoea, disappear at once in blennorrhoea, appear in trachoma after improvement of the clinical conditions and disappear with the recovering cell and mucous membrane.

Thus they probably are not producers of these diseases nor products of degeneration of the cells but microorganisms which are found in different desquamative catarrhs of the mucous membrane. C. Z.

On the Nature of the Morbid Agent of Trachoma. Herzog, H., Berlin (*Deut. Med. Woch.*, 1910, No. 23, p. 1076), intends to prove exhaustively in a forthcoming monograph that the elements of trachoma corpuscles are identical with certain, at present not known, forms of involution of Neisser's gonococcus. The infection in trachoma occurs by constant augmentation of these forms within the conjunctival epithelia through a symbiotic adaptation to an intraepithelial parasitism, appearing as the well known zoogloeas, termed trachoma corpuscles. Without the least disparagement of the merits of Halberstedter and von Prowazek in first discovering the trachoma corpuscles it must be asserted that the elements of the trachoma corpuscles have nothing to do with protozoa. Their true nature and original relations are conclusively determined by this investigation.

In conjunction with the proof furnished by R. Greeff, that inoculation of secretions, containing trachoma-corpuscles, on the human conjunctiva produces trachoma, H. claims that his investigations close the chain of phenomena which etiologically constitute the essence of trachoma. C. Z.

Benign Pseudo-Trachoma of School Children.—Alger, Ellice M. (*Saskatchewan Med. Jour.*, February, 1910).

By way of introduction the writer emphasizes the importance and justice of the strictest possible examination of immigrants suffering from trachoma and of the isolation or segregation and continued routine treatment of school children in which the disease is suspected. He says that one is frequently confronted with a number of cases in children where an absolute diagnosis is questionable in the minds of reputable authorities, and it is really often a query if the child does not receive more harm than benefit by a great deal of treatment for a disease which he does not absolutely possess.

The broad misrepresentation of the term and the confusion in recognizing its nature is frequently due to ignorance or negligence in excluding the Koch-Weeks Bacillus and the Gonococcus, as well of ordinary follicular conjunctivitis. The credit of the discovery of the trachoma bodies by Halbersteder and Prowazek has been overlooked by the author and given to another. The symptoms of trachoma are given at length emphasizing papillary conjunctivitis he states that this does not of necessity mean that the condition is a trachomatous one; smoke, dust, filth, and the action of certain drugs, frequently accounting for this form of hypertrophy. The mechanical factor of irritation is a point frequently lost sight of. Boys are more often affected as being more frequently out of doors and subjected more to exposure and also being less cleanly than girls. Lashes, cinders, and other foreign bodies in the eyes are also contributary causes with hypertrophied tonsils, adenoids, and glandular involvement. The author quotes Fuchs who states that follicular or catarrhal inflammation can easily originate without microbic infection while trachoma cannot; the presence of follicles alone is not a sufficient diagnosis, but with scarring that of trachoma may be established. An interesting article is concluded by a number of favorite prescriptions for the minor disorder. F. T.

Surgical Treatment of Trachoma. Ayres, S. C., Cincinnati (*Lancet-Clinic*, June 25, 1910), reviews the progress made in the surgical treatment of trachoma. In scarification after the use of a 10 per cent. solution of cocaine, he emphasizes the importance of shallow incisions, not cutting through the tarsus. For mechanical expression of granulations he uses a modification of the instrument devised by Dr. Prince known as chalazion forceps consisting of one ring and a disk which fits into the ring. When the instrument is closed the disk pushes the conjunctiva out through the ring, then when it is drawn forward the nests of granulations are broken up and forced out. Removal of the entire palpebral conjunctiva and the tarsus has produced good results. Removal of the retrotarsal fold has been especially recommended. The conjunctiva is removed from the junction of the palpebral with the bulbar conjunctiva down to within 2.5 mm. of the free margin of the lid. The tarsus is shelled out and the bulbar conjunctiva is united to the strip of palpebral conjunctiva by stitches. In this operation canthoplasty is sometimes another useful surgical means. M. D. S.

## TUMORS

Two Tumors of the Caruncle.—Stiner, L., Soerabaya, Java (*Centralbl. f. prakt. Aug.*, June, 1910, p. 161). The right caruncle of a middle-aged Javanese presented a flat movable tumor of the size of a bean, of irregular granular white surface with red dots, 10 by 6 by 5 mm., its border hanging over like a mushroom towards the cornea. It was cut off with scissors. It was an adenoma and consisted of very large sebaceous glands. According to Saemisch only 6 cases of adenoma of the caruncle have been published.

The other case, a European woman, aged 72, had an oval yellowish white tumor at the lower temporal side of the caruncle, 3 by 2 mm., situated in its uppermost portion, well defined, movable and smooth. It had everted the lower tearpoint and caused epiphora. It was removed by scissors with half of the caruncle and a strip of conjunctiva and was found to be a sebaceous retention cyst. C. Z.

Varix or an Angioma Venosum of the Orbit Cured by Alcohol Injections.—Klinedinst, J. Ferdinand, York, Pa. (*Ophth. Record,* January, 1910). Patient, aged 31. Sitting quietly in a chair both eyes presented a normal appearance. The moment he stoops forward, or inclines his head downwards, the outer half of the lower right eye lid bulges and protrudes forward, appearing of a blue color. The external half of the tarso-orbital sulcus is obliterated by a bluish swelling. If this condition continues long, from any work that requires stooping, he experiences a sense of fullness with a dull pain in eye. There has been no exophthalmus or impairment of vision at any time. Examination: Palpation shows a soft compressible tumor of the external half of the lower right eye lid, including the external canthus, with obliteration of the conjunctival sac due to a bluish swelling like an enlarged vein, about one-fourth of an inch in diameter. There is no bruit or pulsation perceptible. The vision of both eyes is 15/xx, there being a low grade of hypermetropia. An ophthalmoscopic examination reveals nothing abnormal, neither is there any heterophoria. The patient has had no constitutional disease and enjoys good health. The nose, throat and rhinopharynx are normal. Alcohol was selected as the remedy that probably would produce a periphlebitis, and as also being antiseptic and non-toxic in small doses. After anaesthetizing the conjunctiva with cocaine solution, three drops of alcohol were injected into the orbit by means of a hypodermic syringe. The needle was plunged through the conjunctiva close to the floor of the orbit under the vascular tumor so as to avoid puncturing the veins, toward the external canthus to the depth of about half an inch, and the contents injected. After the third injection there were no signs of further trouble, the venous tumor having disappeared; the patient could now bend forward or stoop and not cause any swelling or bulging of the eye lid. G. I. H.

Melanotic Sarcoma of Orbit.—Haden, John B., Galveston, Texas (*Ophth. Record,* January, 1910). Patient, age 5 years. Two weeks ago mother noticed left eye slightly lower than right. Child always healthy, family history negative. Vision 6/vi in each eye. Fundus normal in each. Left eye on plane 15 mm. below right eye. Diagnosis: Tumor of orbit, operation advised. Three days after first visit, operation done,

incision made lower border supra-orbital margin and tumor mass removed. Parents would not consent to removal of eye. Wound healed promptly, ten days after operation child returned home. Three weeks after operation child was brought back, distinct tumor felt and seen between supra-orbital margin and eyeball. Operation advised and consent to remove contents of orbit secured. Complete exenteration following day. Orbital area exposed daily to X-ray for eight days, granulations formed promptly and tumor rapidly returned. Mass removed with ecraseur and curette three times within eight weeks after second operation. Death occurred about fourteen weeks after first operation. G. I. H.

Intradural Glioma of the Optic Nerve, with Macroscopical Findings.—Foucher, A. A., Montreal, Canada (*Ophth. Record,* January, 1910). In a boy, aged 2 years and 3 months, when first seen the right eyeball had become quite prominent, the pupil was dilated and through the transparent media one could see the optic papilla presenting the appearance of an optic neuritis; swollen disk; tortuous, congested vessels on the background, disappearing in places to reappear a little farther on; hemorrhages scattered here and there about the arteries and veins. The intraocular tension of the globe, as immobile as if it were affected by a complete ophthalmoplegia externa, was very high. Although the child was too young to make the usual tests, vision appeared to be completely abolished; the sudden approach of an object to the right eye, while the left was covered, had no effect upon the child. A second examination made two weeks after the first, showed a decided change in the intraocular picture; the papillitis now gave evidence of subsiding and atrophic signs appeared. The increased tension was still quite apparent, the disease being that of a well marked glaucoma with a steamy cornea, widely dilated pupil, pericorneal injection, enlarged scleral veins and a slight haze of the media. A simple enucleation was done, and a complete removal of the tumor from all its orbital attachments. The patient's recovery was perfect and six months after the operation the family physician writes that there is no sign of recurrence of the tumor. The author concludes as follows: A. The nerve. 1. That there has been parenchymatous degeneration of the nerve elements. 2. That no oedema is noted to explain the

enlargement of the nerve, which is about twice the normal diameter. 3. That there has been an enormous proliferation of the interstitial tissues, affecting chiefly the neuroglia. To a much less degree, to thickening of septa. 4. That there is optic neuritis as shown by the large numbers of small round cells and fibroblasts. 5. That there is chronic perineuritis involving the pia and arachnoid as evidenced by an obliteration of the intervaginal space through enormous proliferation of the endothelium and by infilteration with fibroblasts and round cells. 6. That there is a true papillitis due to proliferation and infiltration. 7. That we are dealing with an intradural tumor of the optic nerve and that is a glioma. B. The bulb. 1. That the wound in the cornea occurred at the time of the enucleation, or shortly before, as there is no evidence of inflammatory reaction or repair. 2. That there has been a pyramidal cataract with adhesions at the site of the corneal wound, followed later by loss of degenerated lens fibres through this wound. 3. That there has been an iritis with posterior synechia. 4. That there is no evidence of glaucoma. 5. That the retina has been involved secondarily through the optic nerve. 6. That in neither optic nerve or tumor is there anything noted infiltration with polymorphonuclear-leucocytes nor is there any other sign of an infection. 7. That the changes in the posterior half of the bulb are secondary to trouble in the nerve, while the changes in the anterior half are secondary to the injury to the cornea and lens. Diagnosis: Intradural glioma of the optic nerve.

G. I. H.

Cancer of the Lids and Orbit. — Dupont and Roy (*Le Journal de Med., et de Chir.*, Montreal, March 26, 1910).

The important physical action in early cancerous processes before the disease has extended either deeply into the tissues or has broken down the skin surface, is emphatically advocated both on account of the absence of scar in the ultimate result as well as for the cessation of the malignant process. Valuable time is, however, wasted where the condition is extensive and light treatment is adopted and the scalpel is the only certain means of eradicating the neoplastic cells when these are deeply situated.

A case is reported of cancer of the lid in a Canadian farmer, aged 57. The symptoms which were present for several months

were first indicated by intense pain with active inflammation of the globe and chemosis of the conjunctiva. Photophobia ensued and vision was reduced to fingers at one metre. After the acute process had subsided, the patient noticed a peculiar pain at the outer canthus which persisted for several months and which was followed by a small red spot close to the palpebral margin. This became more marked, vision was lost, a fistulous opening at this point occurred and symblepharon ensued. The sinuses and nose were free from any evidence of purulent or malignant disease. A diagnosis of epithelioma being established a plastic operation was performed under chloroform. The periosteum of the orbit with its contents were carefully removed and after the nasal dust was thoroughly curetted and the diseased portion of the lids excised, flaps were brought over from the side of the nose on the cheek. Microscopic examination of the tissue removed revealed the existence of epithelioma. A photograph shows a satisfactory cosmetic result. F. T.

Ocular Cysts. DeVries, W. M., Amsterdam (*Tydschr. v. Gen.*, August 1, 1908) demonstrates a right sided orbito-palpebral cyste and left sided anophthalmus congenitus. A coloboma of the right lower lid was present; the left lids were small, but well developed. Both conjunctival sacs were shallow, in which nothing could be seen or felt of eye or ocular restes. The contents of the left orbit showed no ocular rests on inspection; only microscopically deep in the orbit a little string (tube) of pigmented epithelium was found, which had at its forder side a couple of small cysts, covered with high epithelium, and at its backside a larger cyst (size of a grain of rice) in which tissue, which appeared like folded retinal tissue. This contained no nerve fibers, only a few ganglia cells; the other layers could be recognised in some places and the layer of the rods and cones was turned toward the cavity, that is an inverse position of the retina. No optic nerve was found.

In the right orbit 3 cysts were found with serous-haemorrhagic contents, one in the upper lid, one in the lower lid, one going from the top of the orbit into the middle cerebral cavity. In one place these 3 cysts communicate. The wall consists of glia, with here and there distinct retinal structure. The layer

of the rods and cones was also here turned inverse. At the place of communication of the 3 cysts in the medial wall a black spot was seen, from where a black small string went through the wall. This black string formed a tube consisting of pigmented epithelium. This tube became wider toward the cyst, the pigmented epithelium continued as one layer of high cylinder cells and this in the glious tissue, which formed the inner wall of the larger cysts and showed here and there retinal structure. No optic nerve is found.

It is possible, that the right cyst has originated, because the primary ocular visicle remained, enlarged and became cyst-out, and that its parts grew out to what they would have formed also in the normal eye, although irregularly, namely the external layer to pigmented epithelium, the internal to retina, the communication to the one layer of cylinder epithelium.

Large defects were present in the brain. E. F. B.

Tendril-form Neuroma (Rankenneuroma). — Nicolai, C., Nymegen (*Tydschr. v. Gen.,* July 4, 1908), was struck by the strange appearance of the 17 years old boy; his left eye was entirely closed, the right one greatly, by tumors in the upper lids. Also tumors on both sides of the forehead, which continue as strings under the scalp to the vertex. The skin over the tumors is normal and movable; they are hard, some so that N. thought of cartilage; insensible on pressure. One tumor of the size of a marble at the inner side of the right thigh. The tumors of the lids were removed under chloroform; they were easily loosened from the skin, but not all of offshoots in the orbit could be entirely removed. Wound healed per primam. Macroscopically they looked like true keloid, but small enlargement showed that the tumor consisted of several smaller ones, which had a structure in the center different from the surrounding. Van Gieson's stain colored the entire tissue yellow, while the surrounding connective tissue was pink. This suggestibility for nervous tissue was strengthened by larger magnification, the nuclei being stained with haemotoxylin. Centrally numerous light-blue rings with a small unstained center are found along the dark brown connective tissue nuclei. The diameter of these rings is 2-3 times that of the round connective tissue nuclei. Coupes parallel to the direction of

the fibrilli showed yellow bundles, which contained at short distances corpuscles, stained blue, like double-nuclei. The space between each pair corpuscles is stained also blue, but lighter, while in the center a fibril is visible. Orceine leaves the outer ring as good as unstained, the center becomes dark brown, as the connective tissue nuclei. A connection of these tumors and deviations of the central nervous system has been noticed. The boy shows also important psychical changes: he has a stupid expression, he is very backward, suffers with enuresis nocturna; the vision, after correction of a myopia of 10 D. is only 6/xxxvi in the left eye and 6/xviii in the right.

Before his 5th year the mother had not noticed anything of the tumors. E. E. B.

## VISION AND COLOR VISION.

Color Blindness.—(*The Engineering Magazine*, April, 1910).—Edridge-Green, F. W., before the Royal Society of Arts. He divides the color blind into two classes. In the first there is light as well as color loss; in the second the perception of light is normal, but there is a defect in the perception of color. He also classifies them in accordance with the number of colors which they see in the spectrum. He says the real object of tests for color blindness should be to exclude: "1. Those who see three or less colors in the spectrum. 2. Those who, while being able to perceive a greater number of colors than three, have the red end of the spectrum shortened to a degree incompatible with their recognition of a red light at a distance of two miles; and 3. Those who are unable to distinguish between the red, green and white lights at the normal distance through insensitiveness of the retinal nervous apparatus when the image on the retina is diminished in size." A test has been devised by the writer consisting of a lantern with slides containing standard red and green glass. By means of certain kinds of neutral glass, ground glass and ribbed glass, various atmospheric conditions are represented. The wool test is objectionable because of the difficulty of obtaining correctly colored wools which are both uniform and permanent, and because the relative luminosity of wools is very great.

M. D. S.

Color Blindness. Allen, Frank. Manitoba, Winnipeg (*Nature*, March 17, 1910), gives a method for the determination of color-blindness, "founded on the exact measurement of the persistence of vision of colors throughout the spectrum, when the frequency of flicker is at its critical value. The only thing the person under examination has to do is to adjust the speed of a sectored disc so that the flickering of the part of the spectrum under observation just ceases. The speed of the disc may be automatically registered on a chronograph by electrical means. A series of measurements throughout the spectrum when plotted gives a persistency curve, which can readily be compared with a similar curve for a normal eye. The great advantage of this test is that it is purely mechanical, and does not involve the handling of colored materials or the judging of colors in any way by the candidate." M. D. S.

Congenital Color Blindness. Taylor, C. H., Medical Officer for Railways, N. S. W. (*Australasian Medical Gazette*, June 20, 1910) draws attention to the effect defective color vision has upon the expression of the face. His experience, he says, has been almost entirely with the wage earners of the railway service, who, in many cases, may be described as leading grey lives. He can generally detect a candidate who has a very defective color sense by his face prior to examination. The face is devoid of warmth and humor, is dull, still and monotonous in the sameness of expression. When a man blind to red and green is unintelligent, his face suggests a mild degree of dementia which his conduct and conversation disprove. The voice of a red green blind in conversation is an unmusical monotone. The appreciation of music in the color blind appears to diminish as the color sense diminishes. The almost complete color blind generally admits to deriving no pleasure from music. A man may, however, be almost tone deaf and have normal color sense. F. P. M.

## *Book Reviews*

**Errors of Refraction and Their Treatment.—A Clinical Pocket-book for Practitioners and Students.—Blair, Charles, M. D., F. R. C. S., Surgeon to the Western Ophthalmic Hospital, London; Ophthalmic Surgeon to the Royal Hospital, Richmond. Second Edition. Published by John Wright & Sons, Ltd., Bristol. Price 2s 6d.**

This is a small work of 105 pages divided into sixteen brief chapters. It is doubtful to say exactly to which class of medical men this little book will appeal, for like all epitomised works a good deal of important side issues have necessarily to be omitted and therefore the whole suffers. Criticised thus the work can be recommended for those who desire to have a practical working knowledge of the subject without being burdened with too much theory. We are sorry to see described the use of the concave mirror for refraction work when that done with the flat mirror is so much simpler and more accurate. Its study by medical men will at least repay them and enable them to test the simpler cases for themselves instead of allowing such to drift into the hands of the optician as at present.

A. A. Bradburne.

**Nursing in Diseases of the Eye, Ear, Nose and Throat.—By the Committee on Nurses of the Manhattan Eye, Ear and Throat Hospital. W. B. Saunders Co., Philadelphia and London. 281 p. p. Price $3.00.**

J. Edward Giles, Arthur B. Duel, Harmon Smith, John Shannon, John R. Page, Herbert B. Wilcox and Eugenia D. Byers are the joint authors of this text book, which as it includes a certain amount of anatomic and other data makes an almost full course for the special nurse, who would indeed be well qualified for her work should she be well informed from this book.

The illustrations are practical, up-to-date and well executed. Those dealing with the display of dressings, examination and

operations, in which the arrangement for the principal procedures is individually depicted, are an innovation which is very welcome.

The line of demarcation between the physician and the nurse is repeatedly and pointedly made in these pages, and her relations to the patient and his family is shown.

The chapters in Part I deal with the germ theory of disease, antisepsis, disinfection of rooms and clothing, sterilization, preparation of operating rooms, the nurse's duties at operations and in emergencies, management of troublesome children, the ideal nurse and her conduct, feeding and care of infants. Part II deals with the Eye, III the Ear, IV the Nose, and V the Pharynx and Larynx. Twenty-one pages of index complete this most satisfactory vade mecum for the special nurse.

H. V. Würdemann.

**Diseases of the Uveal Tract and the Vitreous Body.—Krückmann, E., Professor, Koenigsberg in Pr. Graefe-Saemisch, Handbuch der gesamten Augenheilkunde. Second, Entirely New Edition. Nos. 193 and 194 p. p. 65-147. With 7 Colored Plates. Leipzig. Wilhelm Engelmann. 1910. 4 M. $1.00**

The first part of Krückmann's valuable contribution was reviewed in October, 1908 Ophthalmology, p. 162. The present numbers continue the discussion on syphilis of the iris. K. wishes to discard the term condyloma for papules of the iris, as they lack the characteristic features of condylomas. In the paragraph on gumma of the iris K. follows the elaborate investigations of Ewetzky, who maintains that all gummas of the iris originate in the ciliary body. On account of their early appearance and rapid, partly uncontrolable course they occupy clinically a peculiar position. K. is inclined to attribute these severe early affections and subsequent destruction of the ciliary body to its anatomical structure, especially the vascular system. The other important point is that on account of its deep and inaccessible position, the formation of foci in the ciliary body may remain undetected for quite a long time. The first and most valuable symptom of its progression to the sclera is the formation of nodules near the limbus.

Affections of the iris in hereditary syphilis bear a great resemblance to those of acquired syphilis. According to the

recent doctrine of syphilis and his own clinical experience K. contends that a first affection of the iris after the 20th year of age can be attributed to hereditary syphilis only if the body and especially the eye show certain hereditary signs. Iritis or iridocyclitis with edematous swelling or fibrinous exudations in the earliest infancy generally are of luetic nature. Three excellent colored pictures illustrate gummas of the iris and sclera.

In the now following chapter on tuberculous affections of the iris and the ciliary body the clinical exposition has been much simplified and the text shortened by the aid of a series of splendidly executed colored illustrations of observations of the author of eyes whose tuberculous diseases were beyond all doubt. The nodules, their seat, subsequent visible changes of circulation, secondary dissemination in the eye, conglobate tuberculosis, disintegration and healing of the tubercles, relapses, etiology, human and bovine forms, experiments, and differential diagnosis especially from syphilis, are described in detail. The formerly very general view, that the nodules of the sinus be tubercular, those of the pupillary portion syphilitic, cannot be further maintained.

A special paragraph is devoted to reactions to tuberculin and tuberculin treatment with all necessary details on the preparation of tuberculin and the proper doses. K. considers exclusively the subcutaneous injection of old tubercular of diagnostic value in ophthalmology and as the decisive symptom the local reaction on the eye.

The next chapters deal with iritis and iridocyclitis in leprosy, endogenous infections by staphylococci, streptococci and pneumococci, influenza, typhoid and bacterium coli, autointoxication by putrefaction of albumen in the intestines, diabetes, in diseases of the kidneys, and in ophthalmia nodosa. As the mechanical element in ophthalmia nodosa does not seem sufficient, K. calls attention to the possible venenation of the hairs of caterpillars by their poisonous excrements or glands. Apparently the poison of caterpillars shares with that of snakes the extraordinary preservability in dried form.

The foregoing brief review will sufficiently show that a further recommendation of this elaborate treatise is superfluous.

C. Zimmermann.

**Injuries of the Eye, With Reference to Accident Insurance.—Wagenmann, A.,** Professor, Jena, Graefe-Saemisch, Handbuch der gesamten Augenheilkunde. Second, Entirely New, Edition. Nos. 188 to 191, p. p. 801 to 1,120, with 38 Figures in the Text. Leipzig. Wilhelm Engelmann. 1910. Subscription 8 M. $2.00.

The chapters on pulsating exophthalmus after injuries of the skull by blunt force and on injuries of the eye during spontaneous and instrumental labor conclude the first volume of Wagenmann's important book. Title and index are appended and very tasteful leather covers for binding may be procured from the publisher. We refer to our reviews of the preceding parts in Ophthalmology, July, 1908, p. 791 and October, 1909, p. 146.

The second volume commences with the injuries of the eye and its appendages without remaining foreign body. After general remarks on wounds of the eye, W. gives a most interesting expose of the histology of the healing process in all parts of the eye from his own investigations and from literature in such completeness as will not be found elsewhere. Under the non-perforating wounds of the eye capsule, first those of the cornea are considered, followed by a very welcome paragraph on the relapsing erosions and their treatment with full quotations of the essentials of literature. From numerous observations W. sees the cause of the attacks of relapsing erosions in defective adhesion of the epithelium and in mechanical insults which cause a traction and detachment of the epithelium and subsequent lesion of the fine nerve endings.

Under infectious inflammations after nonperforating injuries of the cornea a very exhaustive chapter is devoted to serpent ulcer with a full account of the numerous modes of treatment and statistics from several clinics on the termination of the disease. The serum treatment according to Roemer, Deutschmann and Darier, is treated in detail. W., however, considers it still in the experimental stage.

The next section discusses the perforating injuries of the eye without remaining foreign bodies, the treatment of aseptic and infected perforating wounds and their pathologic anatomy with numerous illustrations, traumatic cataract, etc., lesions of the orbit and its contents, especially the optic nerve.

The third section on injuries with remaining foreign bodies contains general remarks on the peculiarities of these injuries,

especially the chemical action of foreign bodies and the means for their detection and localization by sideroscope, metallophone, magnet, transillumination and Roentgen rays, with a detailed description of the various sideroscopes of which that of Hertel is given preference. The industry which the author devoted to his work is something marvellous. Every feature of this important subject receives the most exhaustive treatment and gives the fullest possible information imparting to the excellent book its unusual value. C. ZIMMERMANN.

**Disturbances of Motility of the Eye According to the Most Recent Researches.—Bielschowsky, A., Professor, Leipzig. Graefe-Saemisch, Handbuch der gesamten Augenheilkunde. Second, Entirely New, Edition. Nos. 111, 183, 192. 240 p. p. with 59 Figures in the Text and 12 Plates. Leipzig Wilhelm Engelmann. 1910. Subscription 6 M. $1.50.**

First the author gives a brief exposition of the physiological facts which are absolutely necessary for the understanding of the pathological phenomena, their exact examination and proper treatment, with utilization of Hering's elaborate researches. Here we have a section on the sensory apparatus of the double eye, in which the projection theory is shown to be untenable and the summary given that to every intended innervation of the double eye belongs a certain position of the chief direction of fixation, and that a correct localization of the fixated object is only possible if the normal relations exist between motor impulses and resulting ocular movements. Under motor apparatus of the double eye the correspondence of the ocular movements, the fusion, the factors determining the position and motility of the eyes, the field of fixation, Listing's laws of ocular movements, etc., are considered.

Then follows a general symptomatology of the simple ocular paralysis, subjective symptoms, as diplopia, disturbance of localization, and course of examination in all details. Finally the special symptomatology of the palsies of each muscle, with many illustrations, is most elaborately and ably presented, everywhere displaying the mastery of the intricate theme by the author. C. ZIMMERMANN.

**Treatment of Myopia.—Hirschberg, J.,** Berlin. 89 p. p. Urban and Schwartzenberg, Wien, 1910. 3 M. $0.75. This Essay was Written in 1904 at the Instance of Prof. E. von Leyden for the Great Work: "Deutsche Klinik am Eingang des 20ten Jahrhunderts. (German Clinic at the Beginning of the Twentieth Century)."

To meet the wishes of some colleagues for making it more accessible to ophthalmologists it was re-edited, but unchanged in form, as any alteration would have disturbed its uniform character, especially since the publications of the last few years rather corroborated than modified H.'s principles based on a large experience. In this latter point lies the great value of the work, which most thoroughly considers myopia and its treatment in all essential details and complications, with very accurate clinical histories and statistics from H.'s clinic, also prophylactics and operations for myopia towards which H. maintains the utmost reserve. H. says that the full and constant correction of children in every case is frequently unnecessary. It is unnecessary in myopia of less than 2.00, impossible in myopia of more than 6.00, which requires a considerably weaker, or no, glass for near work. The only good point in Foerster's doctrine of full correction is that children, whose myopia has increased in a few years, e. g., from 0.50 to 2.30 or 1.00 to 3.00, must be restrained in their near work or are given near glasses which allows of a greater reading distance. The interesting and splendidly written work deserves the widest circulation. C. Zimmermann.

**Copulation of the Retina With the Chorioid by Contactual Connection Between Sensory Epithelium and Pigment Epithelium. A Mechanical Element so Far Not Considered in the Anatomy, Physiology and Pathology of the Eye, Especially in the Pathogenesis of Detachment of the Retina. Halben, R.,** Dr., Privat-Docent at Griefswald, Berlin. 1910. S. Karger. 31 p. p. One M. $0.25.

Not satisfied with the correctness of the general view, that the position of the retina in the eye is secured by its attachment at the optic disc and the ora serrata, and the pressure of the vitreous, Halben postulates still other elements and sets forth his investigations and arguments for their existence. They are attributed to the intimate contact between sensory epithelium and pigment epithelium. The anatomical peculiarities on these structures which suggest such a connection, are described

in detail. Thus detachment of the retina in the not perforated eye can only occur after the connection between the cones and rods and the pigment epithelium has been loosened by a primary lesion of them.

The author devised a new method of treatment of detachment of the retina which aims by removing the retro-retinal fluid a reattachment and to preserve it by rehabilitating the turgescence of the sensory epithelium and pigment epithelium by hyperemia and nutrition. It yielded a very good result in a desperate case.

We highly recommend the interesting essay, which contains an abundance of novel ideas, for a closer study.

C. Zimmermann.

**Trachoma in Eastern Prussia.—Küsel,** Dr., Gumbinnen, Sammlung zwangloser Abhandlungen aus dem Gebiete der Augenheilkunde. By A. Vossius. 80 p. p. Halle a. S. Carl Marhold. 1910. $1.80. M. $0.45.

After historical and geographical remarks the author describes the measures adopted on a large scale by the state, from 1896 on, against the disease, following the directions worked out by Prof. Kuhnt. They consisted in special trachoma courses for physicians, reservation of free beds for trachoma patients in various eye clinics and hospitals, public instruction, etc. These efforts met with remarkable, partly extraordinary, success. At the same time, however, it was emphasized that the combat must be continued, lest the achievements obtained by much work and expenditures, would be lost. A great deal of the beneficial results in the treatment is ascribed to the operation devised, in 1882, by Heisrath, and improved by Kuhnt. Then the etiology, general course, peculiarities, relapses, complications, diagnosis, prognosis, and pathologic anatomy are discussed in detail. The essay gives a very good exposition of the present state of the pathology and therapy of trachoma and will be read with profit and interest. C. Zimmermann.

**On the Behavior of the Sinus of the Anterior Chamber and Its Structures Before Birth.—Seefelder, R.,** Leipzig. Graefe-Saemisch. Handbusch der gesamten Augenheilkunde. Second, Entirely New, Edition. No. 195. 37 p. p., with 17 Figures in the Text. Leipzig. Wilhelm Engelmann. 1910. 2 M. $0.50.

As emphasized by Hans Virchow in his microscopic anatomy of the external ocular tunic, the structure of the sinus of the

anterior chamber of man differs so widely from that of the animals that the results of experimental researches on the anterior effluent paths of the eye can only be applied with great reserve from animals to man. These differences, however, do not exist at certain periods of fetal life. Thus it may happen that a human sinus which remained in an early stage of development or grew in an atypical fashion, may present a great resemblance to the sinus of animals. This noteworthy phylogenetic fact gains in importance by the apparent greater disposition of such human eyes to glaucomatous conditions and allows inferences on the regulation of the ocular fluids.

With these introductory remarks Seefelder vindicates his more exhaustive description of these conditions. Commencing with a very early stage in which the embryo measures only 8.5 mm., S. sets forth the development of the structures of the sinus in the different months of fetal life, with numerous illustrations. According to his own investigations the fifth month is of great importance not only in the development of this region, but also of the whole eye, by the unfolding of the anterior chamber, which is completed at the end of the 6th month, commencing with a narrow, nearly triangular, cleft. The anterior chamber even after its final development remains very shallow. The author's discourse on the causes which concur in the production of the anterior chamber is very interesting. As the primary cause most likely lies in the development and increase of the aqueous, the question is discussed as to the origin of the aqueous, whether from iris, pupillary membrane, or ciliary processes, or all, and why this occurs so relatively late. While Leber ascribes the source to the vascularized pupillary membrane, Hamburger utilizes the fact that the anterior chamber of the fetus, in spite of the complete closure of the pupil, is well filled, in favor of his standpoint against the production of the physiological aqueous by the ciliary processes. Seefelder, however, does not doubt, that the pupillary membrane is permeable for liquids, as according to his investigations the histological structure of its membranous portion closely resembles that of the zonula Zinnii whose permeability for fluids and formed elements has been proven. He considers it perhaps not merely accidental, that the first onset of the development of the anterior chamber coincides with the better development of the ciliary processes. It is well possible that this is not only

a chronological but also a causal connection in the sense that with this anatomically demonstrable fact the commencement of the function of the ciliary processes as secretory organ of the aqueous is connected. This explanation, if it be correct, would have preference before others, as best adapted to the at present almost generally accepted theories on the regulation of the ocular fluids.

The last paragraph describes the sinus of the new-born which is very shallow as Seefelder found by his anatomical examinations of hardened eyes and his clinical observation on over 1000 eyes of new-born children.

S.'s elaborate essay is of especial value, as it is based on original investigations and is the first complete treatise on this subject.

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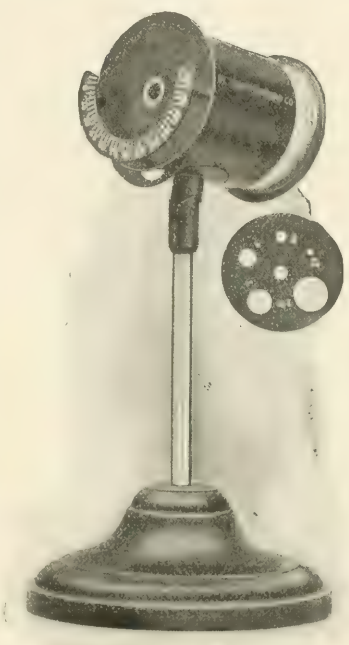

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"In the selection of the horses which are to act as the living laboratories for the production of the antitoxin, we apply not commercial or academic knowledge merely, but, what is more to the point, veterinary skill. The animals must be vigorous and healthy. They are carefully examined, their temperature noted for several days, and the presence of glanders excluded by the delicate mallein test. It is the blood-serum of these animals that is to be injected into the patient later on, and no precaution can be regarded as extreme which contributes the slightest positive assurance of its purity.

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"These are preliminary considerations. Young, healthy, well-kept horses, indispensable as they are, would be of little use in the elaboration of a reliable antitoxin unless the work of injecting them with toxin were conducted accurately, aseptically, systematically, and throughout a period long enough to allow physiological reaction up to the limit of attainable immunization. We have horses enough, so that there is no oc-

casion to be in a hurry with any of them; the exact length of time required for complete reaction is determined in each individual instance by carefully scheduled observations.

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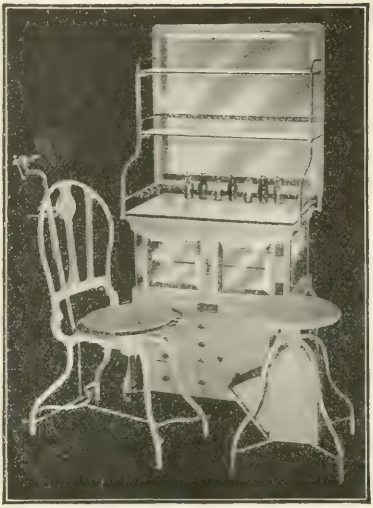

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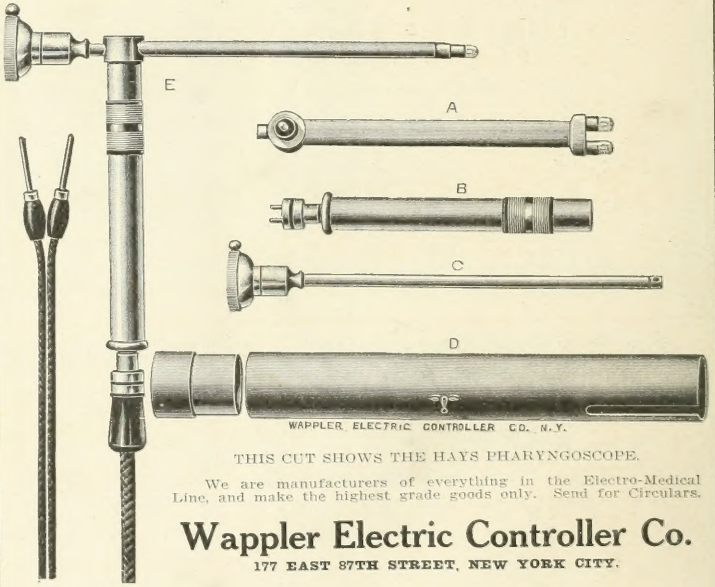


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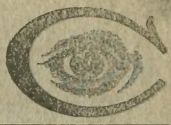

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